



The Untapped Potential of **The Egyptian Agri-Tech Sector: Driving Innovation and Growth**

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Abbreviations & Acronyms

AgriTech	Agricultural Technology
AI	Artificial Intelligence
BDC	Banque du Caire
Bn	Billion
B2B	Business to Business
B2B2C	Business to Business to Consumer
B2G	Business to Government
CAGR	Compound Annual Growth Rate
CAPMAS	Central Agency for Public Mobilization & Statistics
CBE	Central Bank of Egypt
EBRD	European Bank for Reconstruction & Development
FAO	The Food and Agriculture Organization of the United Nations
FDI	Foreign Direct Investment
FinTech	Financial Technology
FRA	Financial Regulatory Authority
FY	Fiscal Year
GAFI	General Authority for Investments & Free Zone
GIZ	German Agency for International Cooperation
GDP	Gross Domestic Product
GMOs	Genetically Modified Organisms
ICT	Information Communications Technology
IFC	International Finance Corporation
ILO	International Labor Organization
ITIDA	Information Technology Industry Development Agency
MALR	Ministry of Agriculture and Land Reclamation
MCIT	Ministry of Communications & Information Technology
MENA	Middle East & North Africa
Mn	Million
MoE	Ministry of Environment
MoF	Ministry of Finance
MoU	Memorandum of Understanding
MoPEDIC	Ministry of Planning, Economic Development and International Cooperation
MSMEDA	Micro, Small and Medium Enterprises Development Agency
MSMEs	Micro, Small, and Medium Enterprises
NBE	National Bank of Egypt
SaaS	Software as a Service
SMEs	Small and Medium Enterprises
TIEC	Technology Innovation & Entrepreneurship Center
USAID	United States Agency for International Development
VC	Venture Capital
YoY	Year over Year

About Entlaq

Entlaq is a dynamic Cairo-based think tank dedicated to reshaping Egypt's entrepreneurial landscape through advisory and capacity-building programs. Our mission is to provide a unique perspective and innovative solutions to the challenges faced by governmental, investor, and entrepreneurial stakeholders across the ecosystem.

At Entlaq, we leverage our extensive network of governmental and ecosystem partners to deliver research-driven insights, strategic guidance, and policy recommendations that create a supportive environment for startups and promote sustainable economic growth. Our advisory arm is committed to fostering a data-driven ecosystem, ensuring that all stakeholders have access to critical information for informed decision-making.

Our capacity-building initiatives are crucial in nurturing early-stage businesses, enhancing entrepreneurial skills, and accelerating startup growth, thereby strengthening the overall ecosystem. Through these efforts, Entlaq plays a pivotal role in advancing Egypt's position as a regional innovation hub.

Our Mission

Curate talent, sustainable practices, and data driven solutions to cement entrepreneurial growth.

Our Vision

Catalyzing Egypt's positioning as the region's innovation hub through fostering an innovative, inclusive, and impactful ecosystem.

About **Entlaq**

Advisory



Policy and Legislative
Advisory



Market Access and
Expansion



Research-based
Products



Strategy Advisory

Programs



Investment
Readiness Programs



Accelerators &
Incubators



Corporate Innovation
Programs



Capacity Building &
Upskilling Programs

Executive Summary

This report presents a comprehensive analysis of the Agri-Tech sector in Egypt, focusing on its current state, challenges, and future potential. The study employs a multi-pronged methodology, including secondary data analysis, primary data collection through interviews and a comprehensive online survey, and an extensive review of the broader agricultural ecosystem. By integrating qualitative and quantitative datasets, the research provides a nuanced understanding of the Agri-Tech landscape, encompassing the opportunities and challenges faced by various stakeholders.

Agriculture contributes 11.6% to Egypt's GDP, with a Compound Annual Growth Rate (CAGR) of 16% from FY 2018/2019 to 2022/2023. Significant investments and strategic initiatives, such as an LE 82.9 billion investment plan by The Ministry of Planning, Economic Development and International Cooperation, have boosted the sector. This growth is evident in the notable increase in the establishment of agricultural companies. Additionally, modern irrigation projects and integrated agricultural development initiatives are pivotal in enhancing productivity. The ICT sector shows significant mobile and internet penetration, indicating potential for digital solutions in agriculture.

The policy and regulatory environment plays a crucial role in supporting the sector's growth. Laws and regulations, including the Contract Farming Law and the Agricultural Solidarity Fund, promote structured growth and fair practices. Government initiatives like the Sustainable Agricultural Development Strategy 2030 and the electronic land ownership system aim to modernize and streamline agricultural operations. However, challenges such as water scarcity, climate change, and demographic pressures remain critical. To address these, advancements in irrigation techniques, international cooperation, and the adoption of modern farming practices offer pathways to sustainability and enhanced productivity.



Interviews with farmers, Agri-Tech startups, and development partners provide valuable perspectives on the sector's challenges, support mechanisms, and policy impacts. Agribusinesses and large farms highlight the importance of navigating the agricultural value chain and foresee significant opportunities in export agriculture and technological adoption. These insights are crucial for understanding the ground realities and the needs of various stakeholders in the Agri-Tech ecosystem.

Strategic recommendations emerging from this study emphasize the need for enhancing data access, supporting innovation, and strengthening the policy framework. Implementing robust data collection and sharing mechanisms will improve decision-making and efficiency. Encouraging investment in research and development will foster high-yield, climate-resilient crop varieties and advanced agricultural technologies. Continuously updating and enforcing regulations will ensure fair practices, support farmers, and attract investments. Leveraging Egypt's ICT infrastructure to promote digital tools and platforms for agricultural management and farmer support is essential. Finally, focusing on sustainable water management, soil health, and environmentally friendly farming techniques will ensure long-term agricultural productivity.

This report provides a detailed, evidence-based roadmap for leveraging Agri-Tech to drive economic growth, ensure food security, and enhance the resilience of Egypt's agricultural sector.

The integrated approach and diverse stakeholder insights offer a holistic view of the opportunities and challenges, setting the stage for informed policy-making and strategic investments in the Agri-Tech ecosystem.



Methodology

This report utilizes a multi-pronged approach to comprehensively assess the Egyptian Agri-Tech sector. The research began with an analysis of secondary data sources on the agriculture and Agri-Tech sectors such as industry reports, government publications, and relevant databases. This initial phase established the economic and demographic backdrop of the region, uncovering trends in skillsets demanded within Agri-Tech and investment patterns shaping the industry's growth.

To gain a deeper understanding from the ground up, targeted primary data collection was conducted. In-depth interviews with farmers provided valuable insights into their specific challenges, while semi-structured interviews and a comprehensive survey distributed among Agri-Tech startups explored their experiences and perspectives on current support mechanisms and the policy environment.

Additionally, interviews with Development Partners shed light on their organizations' roles in Agri-Tech development in Egypt. Questions regarding support for Agri-Tech projects, collaborations with local and international partners, future plans, and challenges in promoting Agri-Tech were incorporated to capture their perspectives and contributions to the sector.

Furthermore, the research scope was expanded to understand the broader ecosystem. In-depth discussions with Food-Tech players assessed their potential impact on both the agriculture and Agri-Tech sectors. Additionally, interviews with Agribusinesses and large farms explored the challenges they face navigating the agricultural value chain and their insights on the sector's future trajectory.

By meticulously analyzing both qualitative and quantitative datasets, the research identified underlying patterns and connections. This integrated approach facilitated a nuanced understanding of the Agri-Tech landscape, encompassing opportunities and challenges faced by various stakeholders, including Development Partners. Ultimately, the report synthesizes these findings, presenting a concise and insightful analysis of the industry's current state and future potential, while also delivering evidence-based tactics to increase data access and benefit both the Agriculture and Agri-Tech sectors and the Egyptian entrepreneurial ecosystem as a whole.

A photograph of an elderly man with a grey beard and glasses, wearing a light grey traditional robe and a matching cap. He is standing in a field of lush green plants, possibly a vineyard or a field of similar crops. The background is a dense, green hillside. The man is smiling slightly and looking towards the camera. The text "Section 1: Overview" is overlaid on the bottom left of the image.

Section 1: **Overview**

Overview

Real GDP Growth Rate at Market Price (%)

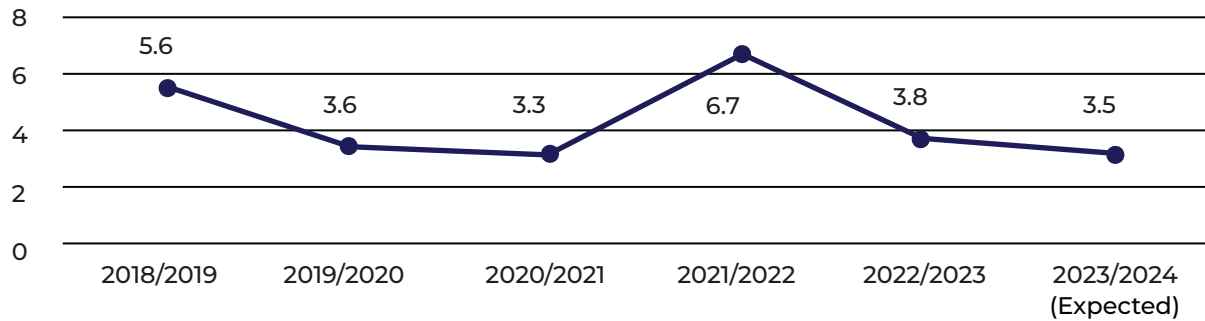


Figure: 1.1

Source: MoPEDIC

The projected Real GDP growth rate for FY **2023/2024** is **3.5%**, according to the Ministry of Planning, Economic Development, and International Cooperation.

Population by Age Group 01/01/2024

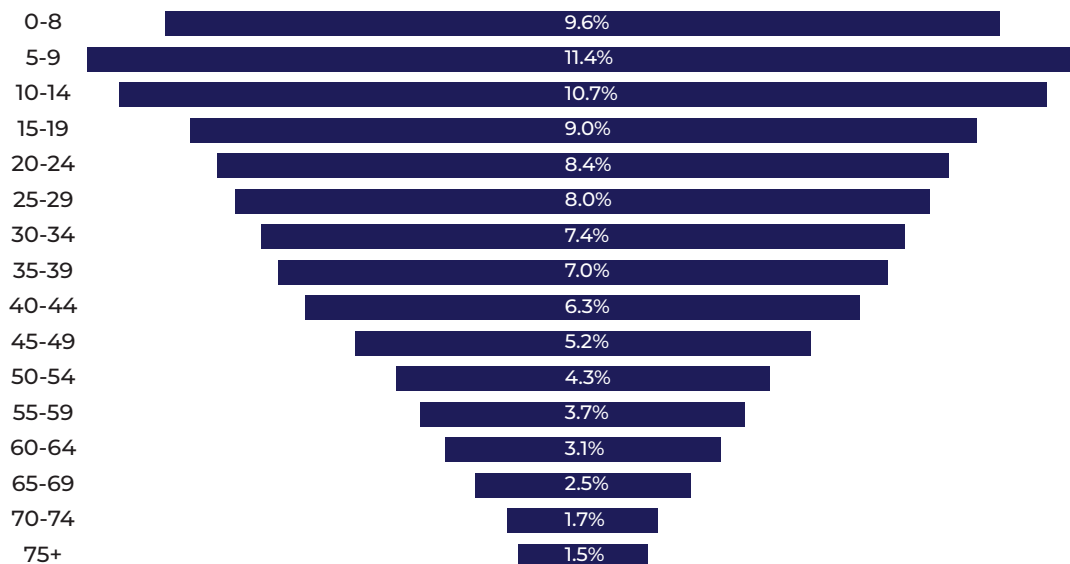


Figure: 1.2

Source: CAPMAS

The current population of Egypt is **106.4 million**, with the age group 15-39 making up **39.9%** of the population.

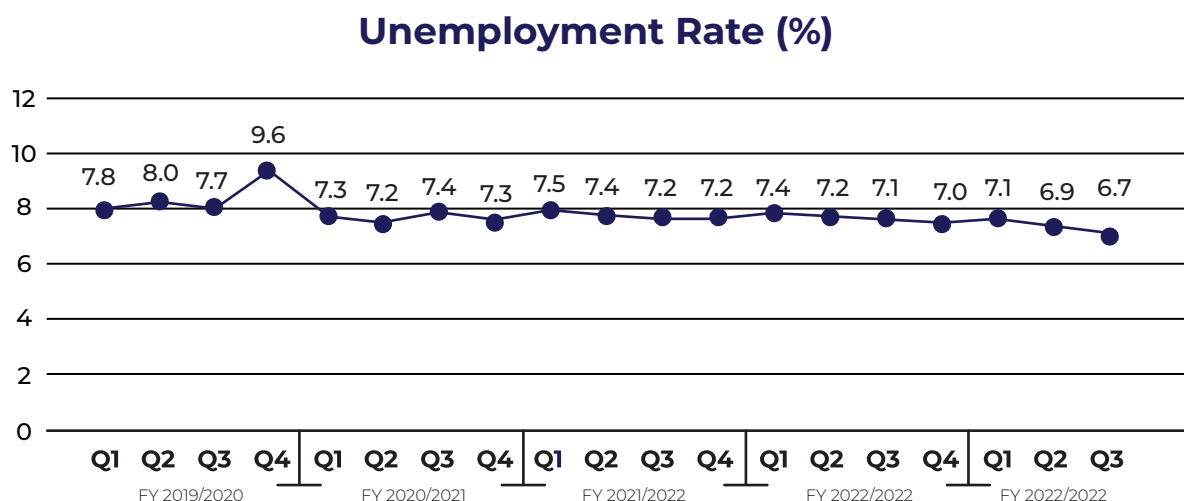


Figure 1.3

Source: CAPMAS

The unemployment rate reached its lowest percentage recording **6.7%** in **Q3 FY 2022/2023**.

Furthermore, Egypt's economy grew by **4.4%** year-on-year during **Q1 of FY2022/2023**, reflecting the resilience of its economic policies despite global challenges like the Russia-Ukraine conflict and climate change. These initiatives and economic growth fostered a conducive environment for the agricultural sector, encouraging the establishment of more agricultural companies and supporting the sector's overall development.

Geographical Regions	Gender Economy Activity Agriculture, Forestry, and Fishing		
			Total
Total	 18.3	 16.4	18.1
Total Urban	 5.3	 2.4	4.8
Total Rural	 27.2	 30.2	27.6
Urban Governorates	 0.8	 0.1	0.6
Urban Lower Egypt	 9.1	 5.1	8.4
Urban Upper Egypt	 6.7	 2.6	6
Rural Upper Egypt	 29.3	 29.6	29.3
Urban Frontier Governorates	 8.9	 2.2	7.4
Rural Frontier Governorates	 44.6	 0	41.5

Figure 1.4

Source: CAPMAS

Overall, **18.1%** of the Egyptian employed persons are involved in the agriculture sector and its value chains. Urban areas have significantly lower participation (**4.8%**) compared to rural areas (**27.6%**). Rural Frontier Governorates exhibit the highest engagement at **41.5%**, while Urban Governorates show the lowest at **0.6%**. Rural Lower and Upper Egypt also have high participation rates of **26.2%** and **29.3%**, respectively, highlighting the dominance of agriculture in rural regions, and the Egyptian employment sector.

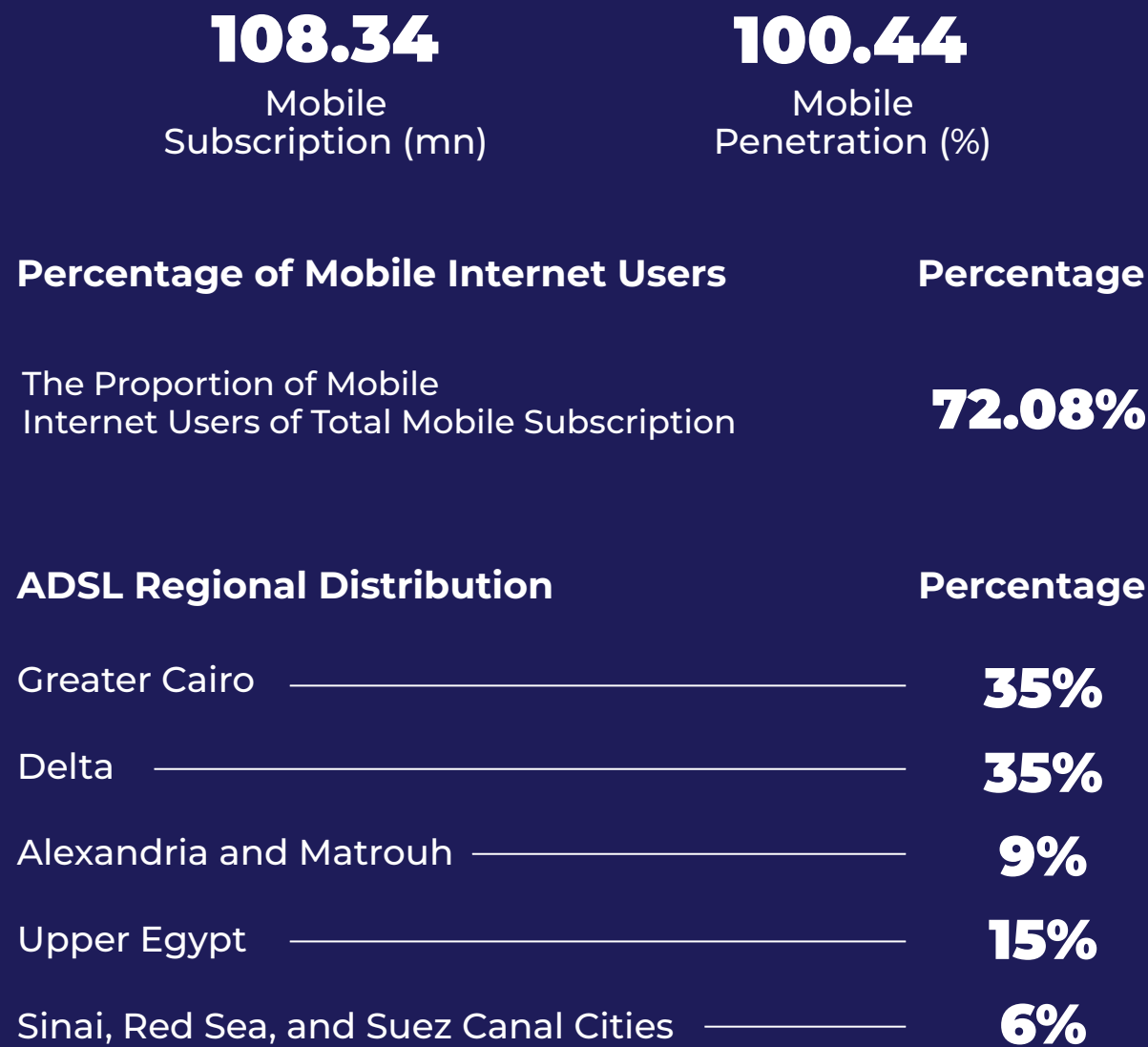


Figure 1.5

Source: MCIT

As of March 2024, Egypt's ICT sector shows significant mobile penetration with 108.34 million subscriptions, achieving a penetration rate of 100.44%, indicating widespread usage. Notably, 72.08% of these mobile subscribers, approximately 78.05 million, use mobile internet services, underscoring moderate demand for digital connectivity. The ADSL regional distribution reveals that Greater Cairo and the Delta region dominate with 35% each, while Alexandria and Matrouh account for 9%, Upper Egypt 15%, and Sinai, Red Sea, and Suez Canal Cities only 6%, highlighting regional disparities in broadband access. This data suggests the need for enhanced infrastructural investment in underrepresented areas to bridge the digital divide.

Agriculture Sector's Contribution to Total Investments

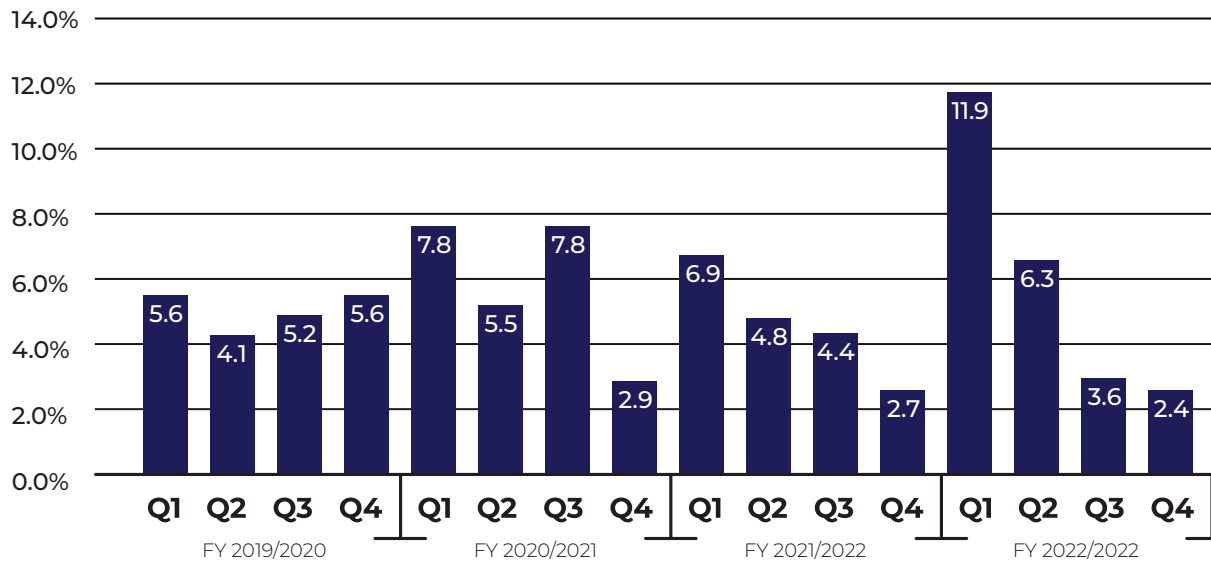


Figure 1.6

Source: CAPMAS and MoPEDIC

In **Q1 2022/2023**, Egypt saw a significant boost in its agricultural sector, driven by substantial investments and strategic initiatives. The Ministry of Planning, Economic Development, and International Cooperation announced an investment plan of LE **82.9 billion** for the agricultural sector, a **31.8%** increase from the previous year, aimed at enhancing agricultural productivity and supporting national food security. This plan includes various programs such as modern irrigation projects, agricultural export development, and integrated agricultural development projects like the New Delta and South Valley Development Projects.

Agriculture, Forests & Fishing

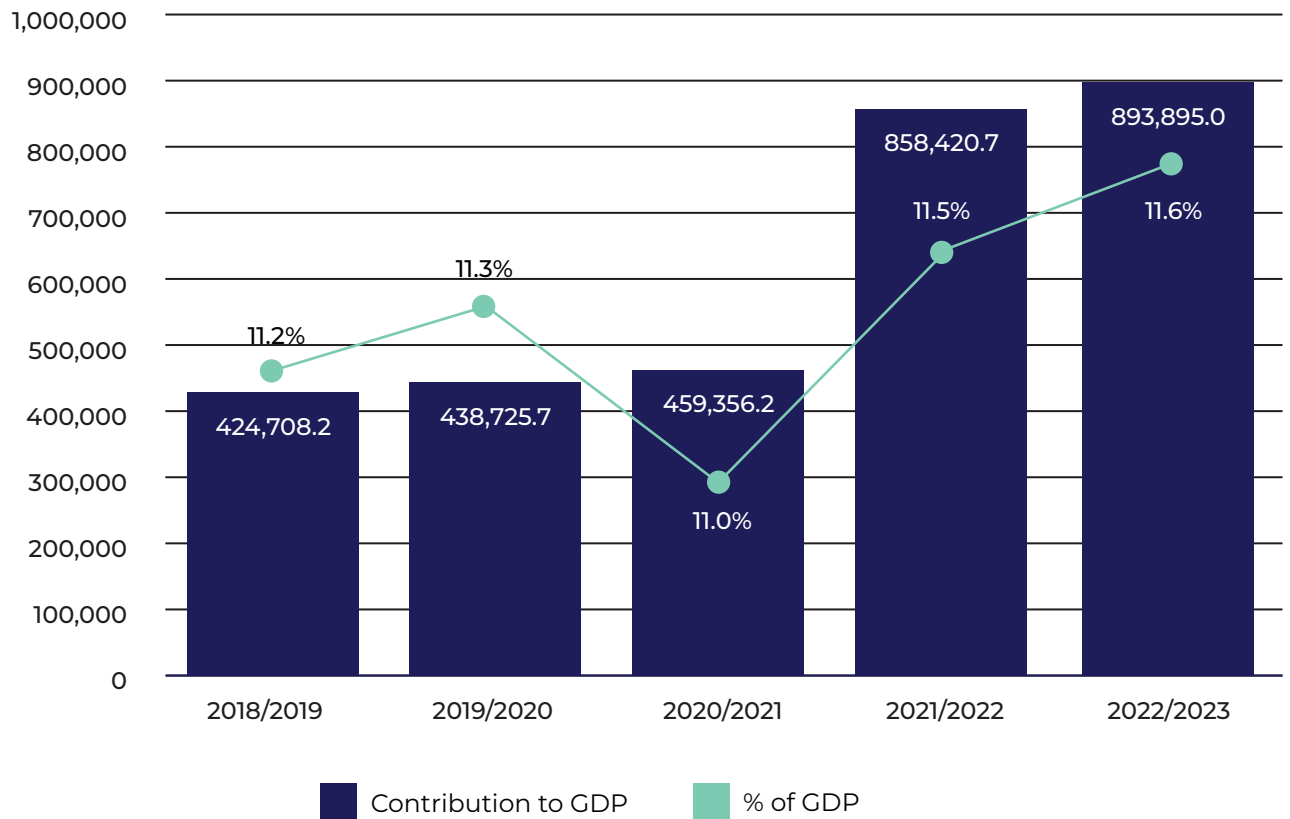


Figure 1.7

Source: CBE

Agriculture as an economic activity makes up 11.6% of the GDP in 2022/2023 up by 0.1% from FY 2021/2022. The CAGR of the contribution of agriculture to the real GDP from FY 2018/2019 to 2022/2023 is 16%, and the YoY growth is 4.1% from FY 2021/2022 to 2022/2023.



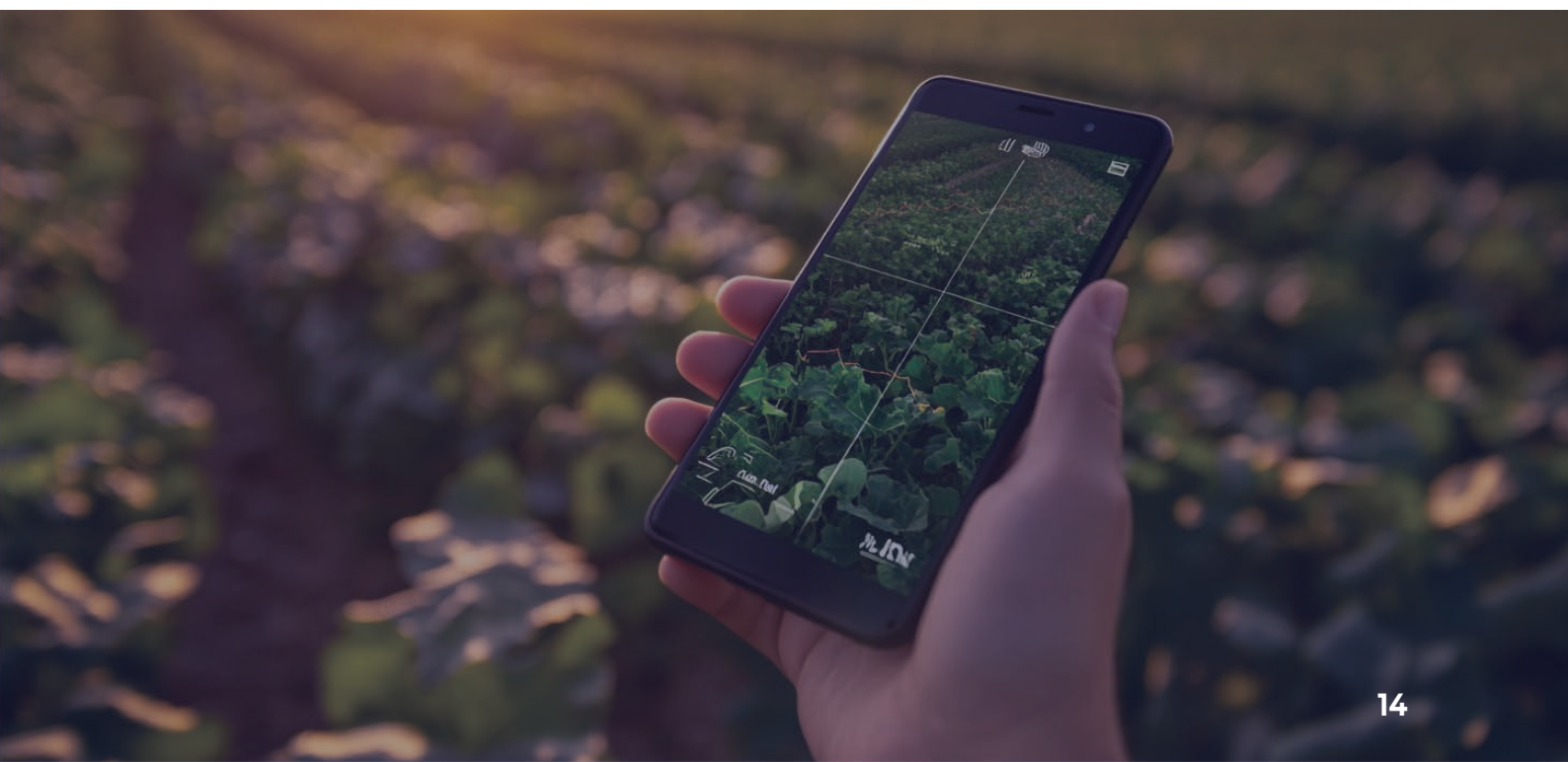
Section 2: **Egyptian Agricultural Landscape**

A Historical & Modern Perspective on Agriculture

Agriculture in Egypt, deeply intertwined with the ancient civilization that flourished along the Nile River, has been a cornerstone of the country's historical and economic development. The annual flooding of the Nile historically deposited nutrient-rich silt on the land, creating highly fertile areas ideal for growing essential crops such as wheat, barley, flax, and various fruits and vegetables. This predictable flooding allowed ancient Egyptians to develop sophisticated irrigation systems and agricultural practices that supported a stable food supply and the growth of a powerful civilization.

In modern times, agriculture remains vital to Egypt's economy, with key crops including wheat, rice, maize, sugarcane, and cotton. The country also produces significant quantities of fruits and vegetables like citrus, grapes, and tomatoes, and maintains a robust livestock sector, including cattle, buffalo, sheep, goats, and poultry. However, Egypt faces significant challenges in agriculture, particularly water scarcity exacerbated by population growth, climate change, and upstream Nile usage by other countries. To address these issues, Egypt has adopted advanced irrigation techniques, such as drip and sprinkler systems, and built infrastructure like the Aswan High Dam to control the Nile's flow and ensure a steady water supply.

Government policies support agriculture through subsidies, research and development programs, and initiatives promoting modern farming techniques. Additionally, international cooperation brings technical assistance, knowledge exchange, and investment in agricultural infrastructure, enhancing productivity and sustainability. Despite the challenges, agriculture's role in ensuring food security and contributing to economic stability underscores its enduring importance to Egypt's development and cultural heritage.



Agricultural Insights

Planted Area (2000-2022) in Thousand Feddans

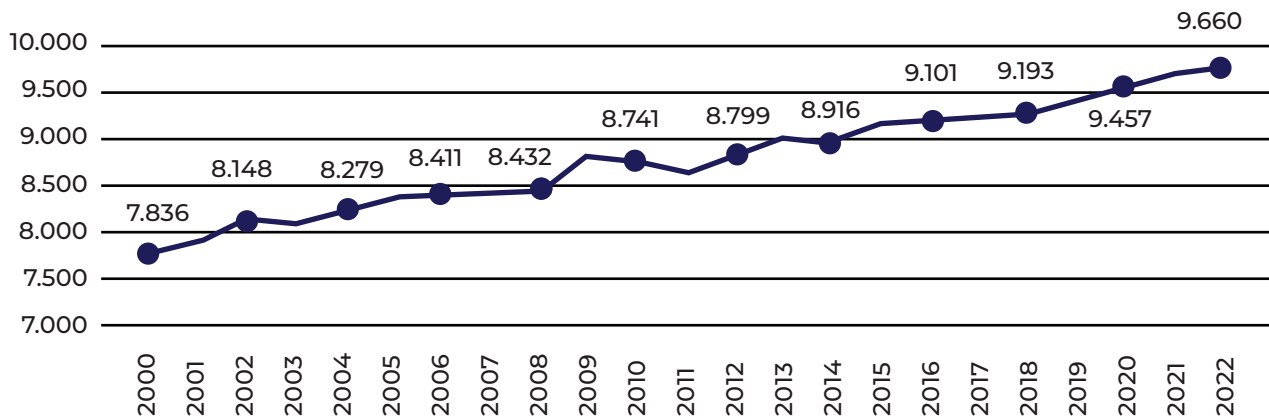


Figure 2.1

Source: CAPMAS

Reclaimed Area (2015/2016 to 2021/2022) in Thousand Feddans

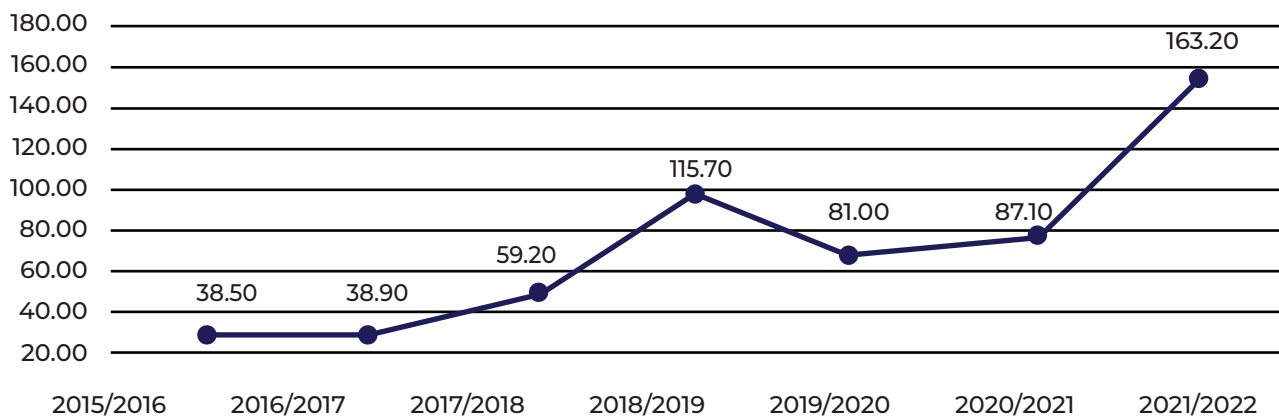


Figure 2.2

Source: CAPMAS

Planted Areas and Production of Strategic Crops

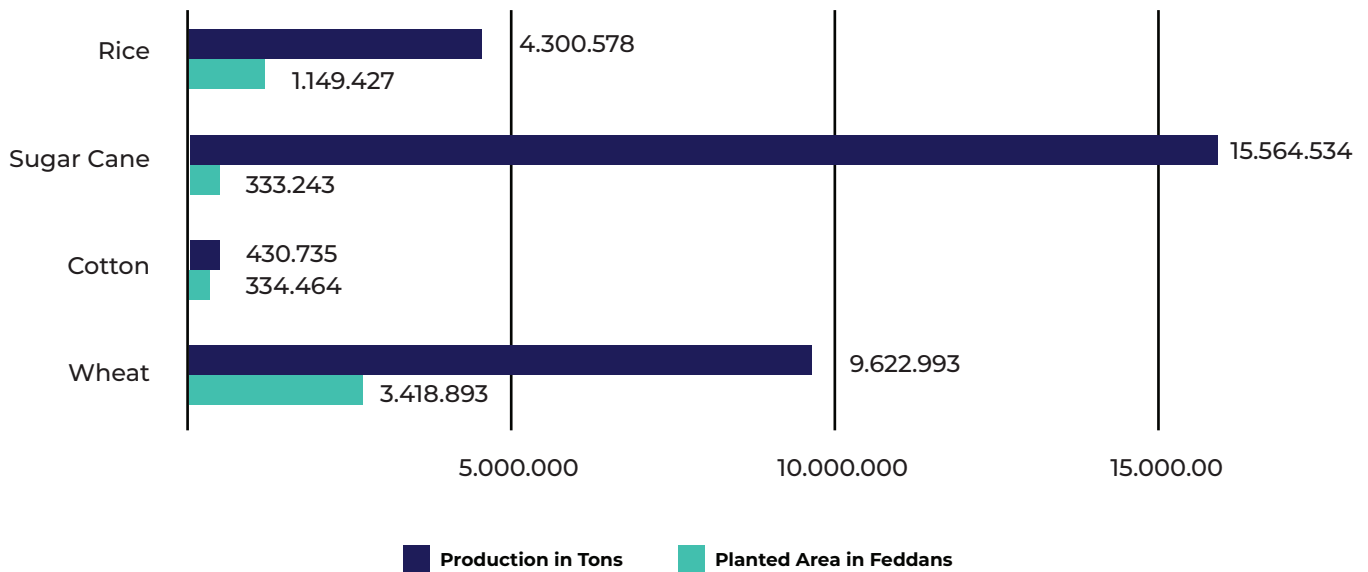


Figure 2.3

Source: CAPMAS

Production of the Most Important Agricultural Crops in Thousand Feddans

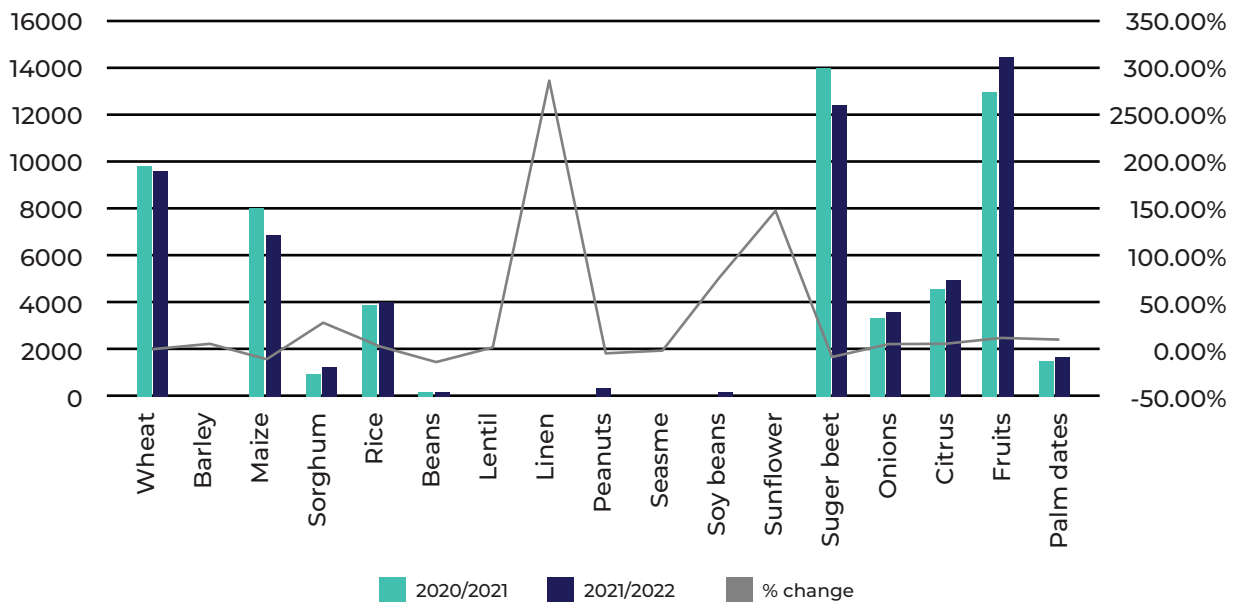


Figure 2.4

Source: CAPMAS

KEY AGRICULTURAL SECTOR TARGETS FROM THE ECONOMIC DIRECTIONS EGYPT 2024-2030

A. Long-term Targets and Urgent Priorities:

Continuation of the agricultural reclamation efforts: Utilize national land reclamation projects and ensure adequate water supply through wastewater treatment, desalination, or groundwater utilization.

Expanding the cultivated area: Increase total agricultural land to 12 million feddans by 2030, from 9.6 million feddans in 2021/2022, with a targeted crop area of 21.5 million feddans.

Launching a national agricultural intensification project: Invest in research and development to boost agricultural productivity by at least 20%, focusing on developing high-yielding varieties that adapt to soil conditions, tolerate climate change, and have shorter growth cycles.

Expanding horizontal and vertical export agriculture: Increase agricultural exports (fruits and vegetables) to \$14 billion by 2030.

Increasing the wheat yield: Achieve a wheat yield of 3.3 tons/feddan through intensive agriculture practices and high-yielding varieties, aiming to raise self-sufficiency in wheat from 47% in 2021 to 70% by 2030.

Expanding the smart card for farmers: Increase the number of beneficiaries to 5.7 million farmers by 2030 and extend health insurance coverage to all Egyptian farmers by 2026.

B. Short-term Targets and Urgent Priorities:

Allocating investments: Target investments of around 116.6 billion Egyptian pounds for the agriculture and irrigation sector in 2024/2023, representing a 71% growth from 2022/2023. The private sector is expected to account for 44% of total agricultural investments in the 2023/2024 plan.

Increasing agricultural production: Increase agricultural production at current prices to 2.43 trillion Egyptian pounds by the end of the plan, compared to 1.82 trillion Egyptian pounds in 2023/2024, representing a 20% growth from the previous year.

Raising the agriculture's share of GDP: Increase the sector's contribution to GDP to 12% in 2025, up from 11.5% in fiscal year 2022/2023.

B. Short-term Targets and Urgent Priorities:

Expanding the cultivated area: Add approximately 750,000 feddans through horizontal expansion projects in the New Delta (2.2 million feddans), North and Central Sinai Development Project (460,000 feddans), Toshka ElKheir Development Project (1.1 million feddans), and the Egyptian Countryside Development Project (1.5 million feddans), bringing the total cultivated area to nearly 10 million feddans.

Increasing the crop area: Target a total crop area of approximately 18 million feddans in the plan year. The plan aims to expand the areas allocated to wheat cultivation to 3.43 million feddans, corn to 2.8 million feddans, and broad beans to 220,000 feddans.

Boosting the agricultural exports: Increase agricultural exports to \$5.7 billion in 2023/2024, compared to \$5.4 billion in 2022/2023

Enhancing the self-sufficiency: Achieve self-sufficiency rates of 49% for wheat and corn, 30% for broad beans, 70% for red meat, and 98% for fish, while generating an export surplus for various fruits and vegetables in the 2023/2024 plan

Expanding the contract farming: Expand the application of the contract farming system to reach an output of 3.4 million tons in the plan year. Additionally, expand the protected agriculture system under the national project to establish 100,000 greenhouses by adding 900 greenhouses in the plan year.

Increasing smart card adoption: Issue approximately 400,000 new smart cards for farmers.

Digitizing the agricultural holdings: Cover all Egyptian governorates in the digitized agricultural holdings system and increase the number of holdings covered by the system to 9 million feddans in 2025, compared to 8 million feddans in fiscal year 2022/2023.

Increasing the certified wheat seeds: Increase the number of certified wheat seeds to cover 125% of local needs and export the remaining surplus to foreign markets in 2025.

Source: Economic Directions Egypt 2024-2030

¹ Digitized Agricultural Holdings

1. **Mapping and Digitizing Cultivated Areas and Crops:** Comprehensive tracking and digitalization of agricultural land and crops across different farming seasons.
2. **Decision-Support and Reporting:** Providing reports to support decision-making, along with regulatory and statistical reports on the cultivated areas for each crop at the national level.
3. **Policy Formulation and Implementation:** Utilizing the system for setting agricultural policies and monitoring their implementation, including verifying land holdings through the issuance of smart cards and eliminating fraudulent holdings.
4. **Enhanced Monitoring and Management:** Developing the methods for monitoring and managing all agricultural departments and directorates.
5. **Provision of Production Inputs via "Farmer's Card":** Facilitating the distribution of agricultural inputs through the "Farmer's Card."
6. **Accurate Identification of Eligible Social Groups:** Precisely identifying social groups eligible for financial support and ensuring it reaches those who deserve it.
7. **Operational Efficiency and Skill Development:** Increasing operational efficiency, speeding up data processing, and enhancing the skills of workers.
8. **Control and Monitoring of Support Disbursement:** Strengthening control and oversight of the disbursement of support to farmers.

Regulatory Framework

1. Contract Farming Law

Law No.14 of 2015 Regulates contract farming. This law regulates the agricultural sector by setting guidelines for producers, traders, and exporters. It aims to prevent both under and over-production by aligning crop yields with market demand. Additionally, by promoting regulated contract farming, the law discourages middlemen from monopolizing the supply chain and unfairly profiting. Instead, fairer pricing and transparent agreements throughout the chain will ensure a better return for farmers, while also helping to stabilize prices.

2. Agricultural Solidarity Fund

Law No. 126 of 2014 Provides for the establishment of a fund called the "Agricultural Solidarity Fund" within the Ministry of Agriculture and Land Reclamation. The fund shall have independent legal personality and its headquarters shall be in Greater Cairo. It may establish branches in the provinces.

3. Extending the Period of Suspension of the Land Tax

Law No. 152 of 2022 Extends the period of suspension of the application of **Law No. 113 of 1939** on land tax for an additional two years.

4. Converting the Central Bank for Agricultural Development and Credit into a public sector bank called the Egyptian Agricultural Bank.

Law No. 84 of 2016 Converts the Central Bank for Agricultural Development and Credit into a public sector bank called the Egyptian Agricultural Bank. The bank shall take the form of an Egyptian joint stock company, the entire capital of which shall be owned by the state. It shall have independent legal personality and its headquarters shall be in Greater Cairo. The bank shall acquire all the rights and obligations of the Central Bank for Agricultural Development and Credit.

5. Improvement and Maintenance of Agricultural Land

Law No. 14 of 2019 Amends some provisions of Law No. 38 of 1976 on the improvement and maintenance of agricultural land. The amendments include extending the period for the application of the law's provisions to 20 years and increasing the maximum amount of the loan that can be granted to farmers to improve their land.

6. Supply Affairs and Protection of Competition

Law No. 15 of 2019 Amending Some Provisions of Decree-Law No. 95 of 1945 on Supply Affairs and Some Provisions of the Law on Protection of Competition and Prevention of Monopolistic Practices. The amendments include increasing the penalties for violations of the law and granting the Egyptian Competition Authority more powers to investigate and prosecute violations.

7. FAO legislation and the Agricultural Cooperatives

Law 204 of 2014 Amends to Law 122 of 1980. The Food and Agriculture Organization (FAO) facilitated workshops for an action plan with a national program to ensure its success. To build capacity, they provided training programs for trainers from the Ministry of Agriculture's Central Administration of Agricultural Cooperatives (CAAC) and members of agricultural cooperatives. A pilot project tested the legal changes, and a virtual network was established for communication. Additionally, study tours to France and Kenya exposed participants to successful cooperative models.

Section 3:
**Agriculture Sector
Initiatives**

Public Sector



The "Future of Egypt" project for sustainable agriculture **مشروع مستقبل مصر للزراعة المستدامة** is located along the new Rod El-Farag - Dabaa road. It spans 1.05 million feddans of the total 2.2 million feddans of the New Delta, aiming for self-sufficiency and export surplus. The project features advanced irrigation systems using treated wastewater and groundwater, modern agricultural machinery, and a planned industrial zone. It also includes employment for around 370,000 people, of which 10,000 are direct employment. The total cost is 8 billion EGP, with significant infrastructure development including roads, electricity, and storage facilities.



The government has launched the electronic land ownership system "Farmer Card", which is one of the new mechanisms implemented by the Ministry of Agriculture to identify land and production size and to reduce the waste of the paper support system for farmers and owners of paper holdings. The Ministry of Agriculture has launched the Agricultural Services Center at the Ministry, which includes the latest computers, communication devices, display screens, and printers, in order to implement the mechanized agricultural holdings system and the smart farmer card, in addition to supporting farmers with guidance information and accurate information.



The Ministry of Communications and Information Technology, and the Ministry of Agriculture and Land Reclamation, announced the soft launch of digital transformation services in agriculture in 2021, including Hudhud, an AI-powered app to assist farmers with pest identification and crop management. The ministries also highlighted smart agriculture projects, the Farmer's Card system, and the development of an agricultural e-portal to enhance digital services and communication within the sector. The initiative supports Egypt's transition to smart, modern agriculture and digital governance.



Egypt's government is joining forces to support small farmers, particularly in Upper Egypt and border areas. Through a new MoU between the Micro, Small, and Medium Enterprises Development Agency (MSMEDA) and the Ministry of Agriculture, the initiative will provide financing, training, marketing assistance, and other facilities to farmers, ranchers, veterinarians, and especially rural women entrepreneurs, aiming to empower them with income-generating projects at home and strengthen the agricultural sector as a whole.



THE WORLD BANK

MSMEDA in collaboration with the World Bank Group offers discounted loans for renewable energy and energy efficiency projects in industry, commerce, and agriculture. They've even created a special program with the IFC to help microfinance institutions fund solar irrigation systems and partner with the Egypt Bioenergy Foundation to provide loans for farmers installing biogas systems.



On January 11th, the Egyptian government announced a five-year loan program on January 11th. This EGP 150 billion initiative offers subsidized loans at an 11% interest rate to bolster the industrial and agricultural sectors. The program allocates EGP 140 million for working capital and EGP 10 million for capital goods purchases. (It's important to note that the available financing will diminish by 20% each year). Aiming to invigorate the industrial sector, the Egyptian government, at a May 17th, 2023 investment meeting, announced a suite of incentives. These include simplifying company establishment procedures, granting access to free economic zones for natural gas-fueled industries, and offering broader support packages across agriculture, energy, housing, and transportation sectors through potential tax breaks, customs improvements, and standardized pricing.

Public Private Partnerships (PPP)



AgriMisr is the first integrated digital agricultural platform in Egypt, established by "E-Aswaaq Misr," a subsidiary of the "E-Finance" group for financial and digital investments, in collaboration with the Ministry of Agriculture and Land Reclamation, the Ministry of Planning, Economic Development, and International Cooperation, the Central Bank of Egypt, and the Agricultural Bank of Egypt. The AgriMisr platform aims to provide the best products, such as fertilizers and enhancers, seeds and seedlings, agricultural pesticides, and high-quality agricultural equipment and machinery from major agricultural input companies. It also encompasses various agricultural activities, including crop, livestock, poultry, and fish production, as well as supply, procurement, trade, packaging, and agricultural manufacturing sectors, forming an integrated circle within the first digital agricultural network in Egypt.



An initiative called the Agri-FinTech Innovation Sprint was launched to encourage FinTech start-ups to develop solutions that address challenges in agriculture. These challenges include improving the digital supply chain, creating online marketplaces for agricultural businesses (B2B), providing digital financial services, and developing solutions for water and waste management. The Central Bank of Egypt launched the program in August 2022, along with the World Food Programme and SKaleUp Ventures. They also partnered with major Egyptian banks that support agriculture, including the National Bank of Egypt, Banque Misr, Banque Du Caire, the Agricultural Bank of Egypt, and the Bank of Alexandria. The initiative culminated in a "Demo Day" where six chosen startups presented their digital solutions aimed at solving problems in Agri-FinTech.



The Central Bank of Egypt converted 3 million agricultural possession cards to dual application prepaid banking cards under the national payment card "Meeza" in cooperation with the Agricultural Bank of Egypt, the Egyptian Banks Company "EBC" and E-Finance Company.



The AgriTech4Egypt Innovation Challenge, organized by CGIAR and various partners including Egypt's Ministry of Agriculture, AIP, FAO, the Agricultural Research Center, and the Center for Development Services, aims to bolster early-stage Agri-Tech ventures in Egypt. The program offers technical validation, market access, and a 6-month acceleration program with an equity-free grant. It targets areas such as digital agriculture, agri-finance, and water management, aligning with Egypt's Sustainable Agricultural Development Strategy 2030 to foster innovation and economic growth in rural communities.



To enhance agricultural digitalization in Egypt, GIZ Egypt conducted a digital literacy training program for trainers in Minya and Beni Suef governorates. This initiative, delivered through the Agriculture Innovation Project (AIP) in cooperation with the Ministry of Agriculture and Land Reclamation and the implementing partner Center for Development Services, equips local experts to educate 2,500 smallholder farmers on digital agriculture technologies. The program aims to improve farmers' productivity and income by empowering them with digital tools. This training represents the first phase, with plans for future rounds introducing more services and solutions.



In a push for digital agriculture, Egypt's Ministry of Agriculture (MALR) partnered with the UN's Food and Agriculture Organization (FAO) to launch "El Mufeed in Food and Agriculture," a mobile app offering farmers advanced digital services. This app aims to streamline production, marketing, livestock management, and pest control practices.



The Food and Agriculture Organization (FAO) is collaborating with Egypt to modernize its agriculture sector. Their joint effort focuses on six key priorities outlined in the Strategic Priorities for Egypt in the Field of Agriculture and Rural Development. These priorities align with Egypt's national development goals and address crucial areas like food security, sustainable practices, rural poverty reduction, climate change adaptation, and job creation, particularly for women and youth. This collaboration builds upon the existing Country Programming Framework (CPF) and directly supports the goals of the Sustainable Agricultural Development Strategy (SADS-2030). By focusing on areas like institutional reform, policy improvements, research, technology transfer, and extension services, FAO aims to empower Egypt's agricultural sector and create a more resilient and competitive agri-food system.

Private Sector



PepsiCo's Arab Youth Hackathon entails a three-day hackathon centered around the generation of business ideas for a cause – specifically that of combating climate change and promoting sustainability in the industry. In collaboration with Plug and Play and the Arab Youth Center, PepsiCo's hackathon allows for the enablement of innovative solutions that are in line with global environmental goals, under the themes of water, climate, circular economy, and agriculture.



Bashaier Agribusiness Platform is a groundbreaking initiative aimed at transforming the agricultural landscape in underserved regions. Through a strategic fusion of technology, market intelligence, and networking, it empowers farmers, traders, and stakeholders across the agricultural value chain. This platform delivers real-time market insights, enabling farmers to make informed decisions regarding crop selection and timing for optimal sales. Moreover, it fosters collaboration and resource access through networking opportunities, while offering essential financial services tailored to address the unique challenges faced by smallholder farmers. Additionally, Bashaier provides comprehensive training on modern farming techniques, enhancing productivity and product quality. By leveraging innovative technologies and data analytics, it ensures accessibility and delivers valuable insights for sustainable growth in the agricultural sector.



Mahaseel to equip farmers with the tools they need to thrive in the era of digital transformation. By integrating AI-powered chat and image recognition technologies, it provides real-time crop health insights and consolidates all essential farming services into a single platform. Beyond streamlining operations, Qamhawey empowers farmers to stretch their financial capacity by enabling them to sell and export their crops directly through the app and monetize farm waste, maximizing returns and unlocking new revenue streams for their sustainable growth.

In-depth Interviews



Redefining the Agri-Tech Sector by Integrating Digital Inclusion: Mahaseel



Dr. Mohamed Abdel Rahman
Mahaseel Technologies CEO

“We see promising prospects for the future of Agri-Tech in Egypt, driven by continued collaboration between the government, civil society, and the private sector. This collective effort to build on each sector’s capacities has proven essential in creating larger, more meaningful impacts across the agricultural ecosystem”

Mahaseel Technologies is a leading Agri-Tech company founded in 2018, with a mission to revolutionize the agricultural sector through digital transformation. Mahaseel’s primary focus is on empowering smallholder farmers by providing them with access to cutting-edge technology, agricultural advisory services, and efficient supply chain solutions. Currently Mahaseel is concentrating on digital traceability, cross-border e-commerce and the utilization of AI-based solutions for sustainable agriculture. Mahaseel addresses the challenge of digital inclusion for farmers, equipping them with the tools needed to thrive in today’s competitive global trading market.

This challenge manifests through several key problems:

- 1. Limited Market Access:** Farmers often struggle to connect directly with buyers, which forces them to rely on intermediaries, reducing their profits and market competitiveness.
- 2. Lack of Timely Agricultural Advisory & Climate Adaptation:** Farmers face difficulty in accessing accurate, localized advice on crop management, pest control, and dealing with the impacts of climate change.
- 3. Inefficient Supply Chain:** Farmers often navigate complex supply chains with multiple intermediaries that drive up costs and reduce their margins without adding value.
- 4. Traceability Compliance Issues:** A lack of traceability makes it difficult for farmers to meet international standards, leading to significant losses and limiting their ability to export.

Mahaseel Currently Offers Three Innovative Solutions to Address the Challenges Facing the Agricultural Sector:

“Takweed” - Digital Traceability: In collaboration with **Egypt's Central Administration of Plant Quarantine (CAPQ)**, we provide a traceability certification program for 14 key crops, officially endorsed by the **Ministry of Agriculture and Land Reclamation**. This initiative ensures compliance with international export standards, helping farmers maximize their trading value and access global markets.

“Mahaseel B2B” - E-Commerce Tading: A platform connecting over **90,000 farmers** directly with local and global buyers, eliminating intermediaries and improving market access. This ensures fair pricing, and efficiency, enabling farmers to enhance profitability and expand their reach.

“Qamhawey” – AI-Based Super App: Leverages the latest AI-chat and image scanning technology, offering real-time crop health advisory and a comprehensive range of services—all in one application. This super app empowers farmers to optimize their farming and trading cycles, helping them manage inputs, predict yields, and adapt to environmental challenges effectively, as well as purchase their agricultural inputs with a touch of a button

One of Mahaseel's biggest milestones has been closing the agricultural value chain cycle this year with the launch of Qamhawey. With this, we now provide comprehensive technology solutions across the entire value chain, ensuring seamless digital integration:

- 1. Pre-Harvest Stage:** Empowering farmers through AI-driven agricultural advisory and agricultural input trade, equipping them with the tools and insights needed to optimize farming practices and maximize yields, as well as higher accessibility to agricultural inputs.
- 2. Marketing and E-Commerce:** Offering farmers direct market access via our B2B platform, connecting them with buyers and helping them secure competitive prices for their produce.
- 3. Post-Harvest Traceability:** Ensuring transparency and meeting international standards, we complete the cycle with digital traceability solutions, enabling end-to-end tracking from farm to cross-border customers.

Securing funding in the Agri-Tech sector has been particularly challenging due to the intersection of agriculture and technology—two industries that operate at different paces. A key issue is the perception gap among investors, many of whom are more familiar with fast-growing fintech ventures or consumer-focused industries, often overlooking the Agri-Tech sector. However, griculture accounts for 12% of Egypt's GDP, and the gap in technology integration presents a major opportunity for innovation and investment.

Currently, Mahaseel Technologies employs **180-200 professionals**, including software and agricultural engineers, creating indirect jobs across Egypt's agricultural ecosystem. By 2025, Mahaseel aims to create over **1,000 jobs**. Their primary focus is educating farmers on digital transformation, which is crucial for maximizing the potential of AI-driven advisory and traceability tools. Mahaseel is also expanding regionally, positioning Egypt as a leader in Agri-Tech innovation.

In-depth Interviews



Pioneering Integrated Agriculture and Sustainability in Egypt's Agrifoods Sector: Dina Farms



Amir Naguib

Chairman of Dina Farms



Ghada Hammouda

Qalaa Group Chief Sustainability Officer

Dina Farms, the flagship investment of Qalaa Holdings in the agrifoods sector, stands as Egypt's largest private-sector fully integrated farm. Founded in 1987, the farm spans over 10,000 acres, driving agricultural production, livestock, dairy production, and retail outlets. As the nation's leading integrated farm with a 'farm to table' business model, Dina Farms prioritizes high-quality, fresh, and reliable products for the market and consumers.

Growth and Market Leadership: Since Qalaa Holdings' acquisition in 2007, Dina Farms has transformed into an agricultural powerhouse, with an impressive herd of more than 14,186 heads, including 7,378 milking cows. The farm controls approximately 70% of the fresh milk market in Egypt, supplying 80% of its raw milk to ICDP and the rest to other key players in the dairy industry. Annually, Dina Farms produces over 80,000 tons of raw milk and aims to increase dairy production by 9% each year, targeting 110,000 tons by 2027 through natural growth and imports.

Diverse Agricultural Production: Dina Farms' agricultural production spans diverse crops, including citrus, peaches, mangoes, olives, palm, bananas, and grapes, alongside wheat, sugar beet, parsley, dill, coriander, alfalfa, corn silage, corn grain, and soybean. The farm's ongoing commitment to excellence is further demonstrated by its expansion plans, including investing EGP 380 million into new cheese, yogurt, and juice sectors.

Milestones in Growth and Innovation: The farm's journey of growth is marked by key milestones. By 2009, the herd size had grown with the addition of new heifers and milking units. In 2010, Dina Farms launched a premium line of fresh milk products with the inauguration of a new PET fresh pasteurized milk plant. In 2024, the farm took a significant step with the establishment of a herbs-drying factory, the largest of its kind in the Middle East, reinforcing its position as a leading supplier of dried herbs to the international market.

Advancements in Dairy Production: In dairy production, Dina Farms has been innovative since 1992, when it developed an SMP production facility to convert excess fresh milk into skimmed milk powder and butter. Over the years, the farm expanded its product portfolio, introducing plain and flavored milk, fermented milk, cheese, butter, yogurt, and other natural dairy products. By 2017, it had doubled its production capacity, introducing new SKUs like multi-serve sizes of milk, and continuing to diversify with products such as juices, white cheese, labneh, Greek yogurt, and fruit yogurt.

Commitment to Environmental Sustainability: Environmental sustainability is at the core of Dina Farms' operations. The farm implements circular waste management systems, producing 100% organic compost annually from feedstock manure. Through the use of cutting-edge irrigation technologies, the farm optimizes water and soil management across its 10,000 acres. These sustainable practices not only ensure the efficient use of resources but also position Dina Farms as a pioneer in eco-friendly agricultural practices in Egypt.

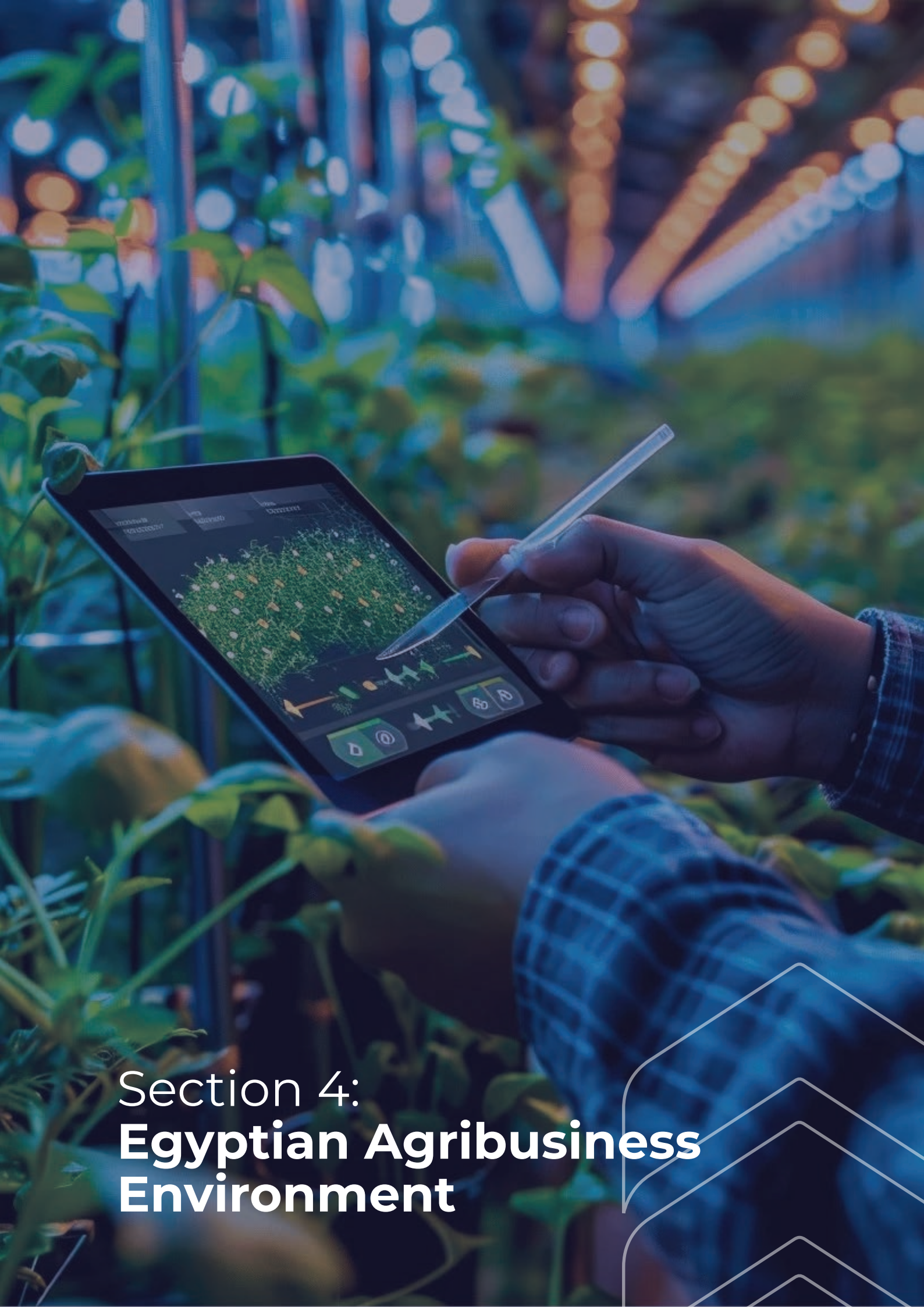
Challenges Facing Large-Scale Agriculture: Large-scale agriculture faces significant challenges globally, including resource depletion, climate change, and environmental concerns. In Egypt, these challenges are compounded by water scarcity, desertification, and improper land management. Despite these obstacles, Dina Farms has crafted an integrated, environmentally sustainable business model to mitigate the impact of agriculture while ensuring food security for the country.

Embracing Agri-Tech Innovations: The farm's forward-looking approach is evident in its adoption of the latest Agri-Tech solutions. For example, Dina Farms established a 6MW solar PV in 2021, which provides around 20% of the farm's total electricity consumption, showcasing its commitment to clean energy and reducing carbon footprints.

Supporting the Agricultural Sector Beyond Production: Beyond production, Dina Farms plays a crucial role in supporting Egypt's agricultural sector by prioritizing food security, self-sufficiency, and high-quality natural products. The farm meets international health standards and ensures that all its products are 100% natural and preservative-free. This commitment to quality is further supported by the farm's four ISO certificates in quality, safety, occupational health, and food safety.

Job Creation and Economic Impact: Dina Farms is also a significant contributor to job creation in Egypt. The farm directly and indirectly supports more than 4,000 job opportunities, spanning agricultural workers, technical and engineering roles, production staff, sales and marketing teams, and administrative support. The farm's extensive operations create a ripple effect across the local economy, generating jobs in manufacturing, transportation, retail, and professional services.

Future Trends and Innovations in Agriculture: Looking to the future, Dina Farms sees several trends shaping the agriculture sector. Technological advancements and sustainable practices will play key roles in optimizing resources and operational efficiency. The farm is committed to embracing these innovations while upholding its core values of sustainability, quality, and corporate responsibility. As market preferences shift toward organic farming and supply chain transparency, Dina Farms is poised to lead the way toward a more resilient and environmentally conscious future for Egypt's agriculture sector.

A person is holding a tablet computer in a greenhouse. The tablet screen displays a 3D visualization of a crop field with various colored markers and icons. The person is also holding a small, clear, rectangular object, possibly a seedling or a sample, near the tablet. The background is filled with green plants and out-of-focus lights, creating a bokeh effect. The overall scene is bathed in a blue and green light.

Section 4: **Egyptian Agribusiness Environment**

Challenges Facing the Egyptian Agribusinesses

1. Information Asymmetry

One of the most pressing concerns is the lack of transparency in government-determined supply prices for agricultural products. Without this crucial information, agribusinesses operate in a blindfold, struggling to set competitive purchase prices for crops from farmers and establish profitable export prices. This asymmetry creates a ripple effect, impacting everything from farm profitability to international competitiveness.

2. Resource-Strapped Extension Services

The Ministry of Agriculture and Land Reclamation's (MALR) extension services, intended to be a lifeline for farmers, are unfortunately under-resourced. This scarcity limits their ability to provide vital technical knowledge and best practices. Uninformed farmers, lacking guidance, often resort to using substandard seeds and unregistered pesticides, creating a vicious cycle of poor yields, contaminated produce, and ultimately, financial losses. Furthermore, the reliance on outdated irrigation methods like flood irrigation contributes to water waste and uneven crop distribution, further exacerbating challenges.

3. Financing the Seedlings of Innovation

Aspiring agribusiness entrepreneurs face a formidable barrier – limited access to capital. The lack of readily available financing options, coupled with cumbersome documentation procedures, discourages potential investors and stifles innovation within the sector. This hinders the development of modern infrastructure, the adoption of advanced technologies, and the creation of new business models that could revolutionize Egyptian agriculture.

4. Quality Concerns from Farm to Market

The reliance on broken seeds and unregistered pesticides by some farmers jeopardizes the entire agricultural value chain. Low-quality seeds translate into poor yields, forcing farmers to resort to unregistered pesticides to compensate, further harming crops and potentially contaminating produce. This not only poses health risks to consumers but also leads to export rejections, impacting the reputation of Egyptian agribusinesses.

5. Post-Harvest Pitfalls

Inadequate drying and storage facilities pose a significant threat to harvested crops, particularly for delicate crops. Improper handling exposes them to contamination, spoilage, and subsequent rejection, leading to devastating financial losses for farmers and agribusinesses alike.

6. Market Access and Integration

The information gap between farmers and the end market creates a power imbalance. Many farmers rely on traders who may only sometimes provide accurate data. This lack of direct access to market information leads to uninformed decision-making, potentially resulting in overproduction of certain crops and subsequent price fluctuations. Furthermore, dependence on traders for market access and credit creates an unequal dynamic, giving farmers little bargaining power and often leading to price manipulation and reduced profits.

7. Costly Transportation Hurdles

Regulations aimed at protecting agricultural land by restricting industrial facilities are inadvertently creating an unintended consequence: the need for long-distance transportation of harvested materials. This not only inflates production costs but also increases food waste due to spoilage and raises the risk of contamination during transport.

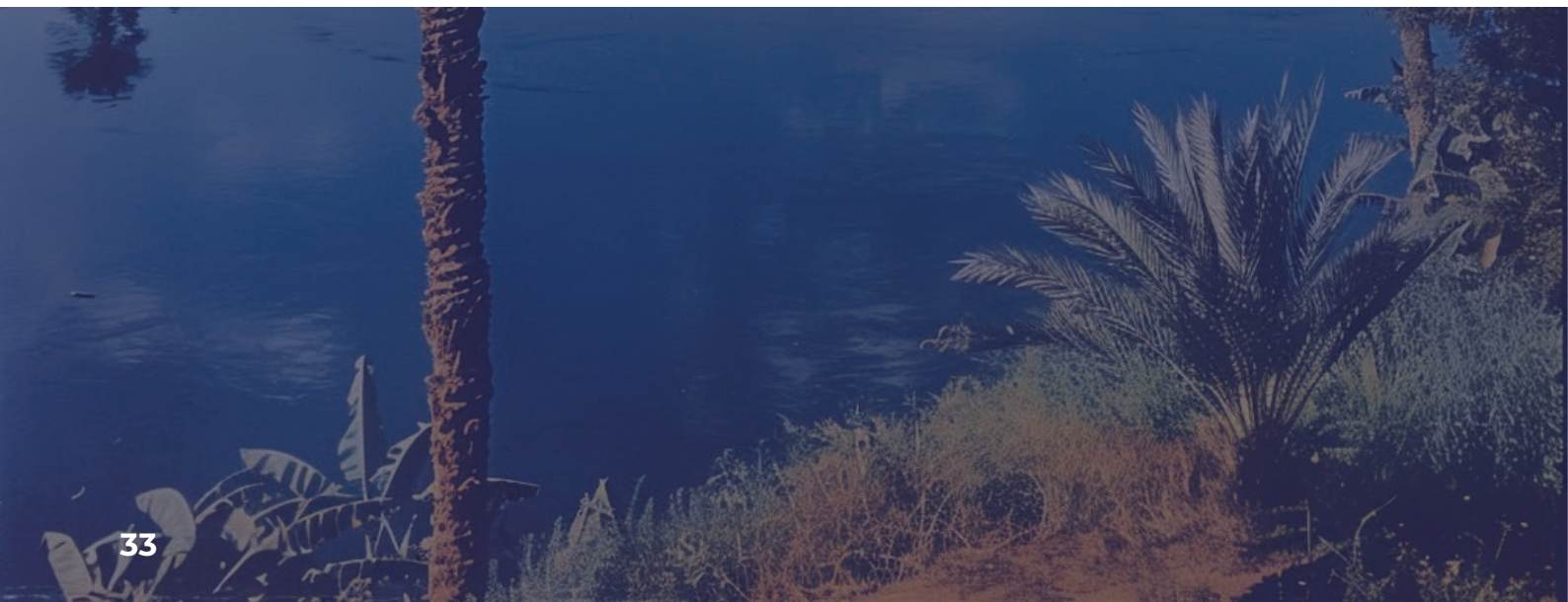
8. Relying on Informal Labor

Egypt's agribusiness sector thrives on a network of informal labor, but this reliance comes with a double-edged sword. While it offers cost-effectiveness and flexibility for small-scale farmers, the lack of formal training and the unreliable nature of the workforce can hinder efficiency and productivity.

9. Lack of Innovation and Technology Transfer

Limited access to new technologies acts as a significant barrier to Egyptian agribusiness growth, particularly for small farmers. Financial constraints often prevent them from investing in advancements like precision irrigation or automated harvesting equipment. Furthermore, a knowledge gap exists, with many farmers unaware of the latest advancements and their potential benefits. Additionally, infrastructure limitations in rural areas, such as unreliable electricity or internet access, can hinder technology implementation. Language and literacy barriers further complicate matters, as technical information may not be available in Arabic or written in a readily understandable format.

² GIZ Egypt, Agricultural Innovation Project, 2020



In-depth Interviews



Innovating Frozen Foods and Shaping the Future of Agriculture: Rayaa Foods



Ehab Emara

Agri Director

“Raya Foods, a leader in the FMCG industry, was founded in 2017 as a producer of frozen foods. With a focus on providing nutritious, healthful prepared foods, Raya Foods has positioned itself as a global leader in the industry. The company's mission is to drive product innovation and build strong customer partnerships, with a commitment to supreme quality. Backed by a team of industry experts, Raya Foods has built a reputation for excellence, both in Egypt and internationally. In 2017, Raya Foods launched the Lazah brand in the Egyptian market with the ambition of becoming a global household name. Lazah offers a range of frozen vegetables and fruits, designed to meet the daily nutritional needs of consumers. With a focus on convenience, adaptability, and efficiency, Lazah makes it easier for families to prepare healthy meals. By offering top-quality products at affordable prices, Lazah aims to bring delicious and nutritious food to tables around the world. In just a few short years, Raya Foods has made significant strides in the industry. By 2020, the company was ranked as the second-largest exporter of frozen vegetables, a testament to its rapid growth and commitment to quality. Like many large-scale agricultural businesses, Raya Foods faces challenges related to labor, land rents, and inputs, including their availability, cost, and quality. Despite these obstacles, the company continues to thrive, supporting a wide range of jobs in fields such as agronomy, veterinary services, engineering, and handicrafts. Looking ahead, Raya Foods sees the future of agriculture shaped by innovations in mechanization and genetic engineering. By expanding the use of mechanization wherever possible and harnessing the power of genetic sciences, the company aims to develop high-yield, high-quality varieties that require less water and are resistant to diseases. These innovations will be critical in ensuring the continued success and sustainability of the agriculture sector.”

In-depth Interviews



Empowering Smallholders with Innovation and Expansion for a Thriving Agricultural Future: Mozare3



Hussein Abobakr
CEO of Mozare3

“We see the future of Agri-Tech in Egypt as promising, marked by a surge in startups and growing investments from both local and international venture capitalists. This boom is fueling innovation and the development of new technologies to tackle agricultural challenges. However, for this growth to be sustainable, there needs to be an improvement in regulatory and legal frameworks. Enhancing policies and legal support will foster further innovation, create a more comprehensive ecosystem for startups, and ensure the sector’s resilience and competitiveness, meeting the needs of both local and global markets”.

Mozare3 is dedicated to creating opportunities for smallholder farmers and expanding their business potential. Mozare3 provides comprehensive support to small farmers through its digital platform, offering access to financing, expert guidance, and market opportunities. By connecting farmers with buyers and ensuring high-quality standards, Mozare3 helps them meet both local and global demand.

Mozare3 addresses critical challenges faced by smallholder farmers, such as limited access to markets, agronomy support, and timely payments. The platform offers contract farming services, enabling farmers to establish reliable and profitable market relationships and facilitates access to broader markets, helping farmers sell their produce at competitive prices and connect with a wider range of buyers. Additionally, the platform provides expert agronomy support, guiding farmers in adopting best practices and sustainable methods to improve efficiency and crop quality. To resolve the issue of delayed payments, Mozare3 ensures timely and reliable transactions, supporting farmers' financial stability and enabling reinvestment in their operations. By tackling these key issues, Mozare3 empowers smallholder farmers and meets off-takers' needs, ensuring a consistent supply of high-quality produce to the market.

Securing funding has been vital for Mozare3, with a focus on identifying investors who not only have a strong interest in the Agri-Tech sector but also offer valuable industry expertise and networks. Although the company did not encounter major challenges in attracting investment, they prioritized finding partners who could contribute beyond financial backing. Mozare3 aimed to collaborate with investors who understood the intricacies of agriculture and could offer strategic guidance and connections to help scale efficiently and create significant impact in the sector.

Mozare3 has made a substantial impact on job creation, both directly and indirectly. Through the Freelance Agronomy Program, Mozare3 offers agricultural engineers and agronomists flexible and meaningful freelance work in the sector. Additionally, the company actively supports and improves post-harvest stations they contract with, aiming to expand job opportunities and enhance working conditions for the existing workforce. By investing in these stations, Mozare3 boosts employment and contributes to more efficient and productive post-harvest processes, driving economic growth and fostering development in the agricultural sector.

Looking ahead, Mozare3 is dedicated to expanding its reach by supporting more farmers and extending operations to additional governorates beyond the 12 they currently serve. The company is committed to enhancing financial inclusion for farmers by forging new partnerships with banks and financial institutions, making financing more accessible. Mozare3 also plans to strengthen market connections by forming new contracts with businesses, buyers, and service providers, with a focus on expanding export efforts to open up international markets for farmers. The goal is to ensure sustained growth, increased opportunities, and greater financial stability for the agricultural communities they serve.



A robotic arm is positioned over a row of green leafy plants in a greenhouse. The background is filled with rows of similar plants and the structural elements of the greenhouse, all under a soft, diffused light. The overall color palette is dominated by greens and blues, with a slight purple tint in the background.

Section 5: **Intersection of Agriculture & Technology**

The Importance of Technology in Agriculture

Global Agri-Tech Trends & Partnerships

Asia

In Asia, Agri-Tech is rapidly advancing, driven by the need to enhance food security and sustainability. Key trends include the digitization of agriculture, sustainable farming practices, and significant investments in agri-financing. The Asia-Pacific Agri-Food Innovation Summit in Singapore highlighted the importance of building resilient food systems through technology and investment. India has seen significant growth in Agri-Tech, driven by advancements in AI, IoT, and blockchain. The Indian government has been promoting digital agriculture through initiatives like eNAM, a national agriculture market platform, and the use of satellite imagery for crop monitoring. Startups such as Ninjacart and DeHaat are connecting farmers directly with markets and providing end-to-end agricultural services. Partnerships with global tech giants like Microsoft and IBM are also enhancing AI-driven solutions for predictive analytics and crop management. Additionally, startups like Qarbotech in Malaysia and Tunas Farm in Indonesia are leveraging IoT and precision farming to improve crop yields and sustainability.

Africa

In Africa, the focus is on building climate resilience and improving smallholder farmers' productivity through technology. Significant investments are being made to support sustainable agricultural practices. For example, the Bill & Melinda Gates Foundation's pledge to help smallholder farmers in sub-Saharan Africa is aimed at integrating climate resilience into farming practices. Agri-Tech innovation is booming in Sub-Saharan Africa, with initiatives like the Pitch AgriHack 2023 showcasing startups that leverage AI, IoT, and mobile technologies. Winners like Nigeria's D-Olivette and Kenya's Rhea are developing solutions from bio-tanks for waste management to IoT soil testing devices. Partnerships with organizations like the World Bank and the AfDB are crucial, funding digital agriculture projects and scaling innovations through programs like the Africa Agri-Tech Accelerator.

Europe

European Agri-Tech is advancing rapidly, focusing on precision farming and sustainability. The EU's Common Agricultural Policy supports technology adoption to increase productivity and reduce environmental impact. Countries like the Netherlands and Denmark are pioneers in using robotics and AI for precision agriculture. Notable startups include the Netherlands' Mavuno Technologies, which uses AI for crop monitoring, and France's Ynsect, which specializes in insect protein production for sustainable feed.

North America

In North America, the focus is on integrating big data, AI, and robotics to optimize farming practices. The U.S. Department of Agriculture's Climate-Smart Commodities initiative invests billions into projects aimed at sustainable farming. Companies like John Deere are leading with advanced machinery and precision farming tools, while startups like Indigo Agriculture use microbial technology to enhance crop yields. Canada is also making strides with its Agri-Food Innovation Centre, supporting Agri-Tech research and development.

South America

South America's Agri-Tech sector is growing, with Brazil and Argentina leading in precision farming and biotech. Brazil's Embrapa (Brazilian Agricultural Research Corporation) collaborates with international tech firms to develop genetically modified crops and smart farming techniques. Agrosmart, a Brazilian startup, uses IoT and data analytics to provide real-time agricultural insights, helping farmers make data-driven decisions. Partnerships with global entities are crucial for technology transfer and scaling innovations.

Middle East

The Middle East faces unique agricultural challenges due to its arid climate, but Agri-Tech is providing solutions. Saudi Arabia and the UAE are investing in vertical farming and hydroponics to enhance food security, partnering with global Agri-Tech firms to implement advanced farming systems. The UAE partnered with the Netherlands to develop innovative Agri-Tech solutions, leveraging Dutch expertise in sustainable agriculture and water management. The Saudi Arabian Public Investment Fund "PIF" and the US-based AeroFarms signed a Joint Venture Agreement to build indoor vertical farms in Saudi Arabia. Ninjacart, India's biggest Agri-Tech startup signed a strategic partnership as part of its global initiative, NinjaVentures to expand in Egypt, the goal is to drive non-linear growth in the Egyptian agricultural sector, prioritizing innovation, sustainability, and efficiency.



Importance of Agri-Tech in Egypt

Agricultural technology, or Agri-Tech, represents a transformative force in the agricultural sector, harnessing innovations to increase productivity, sustainability, and efficiency. In Egypt, a country with a rich agricultural heritage but facing numerous modern challenges, the role of Agri-Tech and its burgeoning startups is particularly critical.

Enhancing Productivity and Efficiency

Egypt's agricultural sector is a cornerstone of its economy, employing 18.1% of the employed persons and contributing 11.6% to GDP in FY 2022/2023. However, traditional farming methods face challenges such as water scarcity, soil degradation, and climatic variability. Agri-Tech introduces advanced tools like precision farming, which utilizes GPS and IoT sensors to optimize field-level management with regard to crop farming. These technologies enable farmers to monitor soil conditions, weather patterns, and crop health in real time, thus maximizing yields and reducing resource wastage. For Egypt, where arable land and water resources are limited, such efficiency is invaluable.

Promoting Sustainability

Sustainability is another crucial area where Agri-Tech makes a significant impact. Egypt's agriculture depends heavily on the Nile River, which provides nearly 95% of the country's water supply, but this vital resource is increasingly under stress due to overuse and upstream developments. Agri-Tech startups are developing solutions like drip irrigation systems, which can reduce water usage by up to 50% compared to traditional methods, and hydroponics, which uses up to 90% less water while increasing crop yields by as much as 30%. These innovations not only help conserve water but also ensure that farming practices do not degrade the environment, thus promoting long-term agricultural sustainability.

Boosting Economic Growth and Job Creation

The emergence of Agri-Tech startups in Egypt is a powerful driver of economic growth and job creation. These startups contribute to the economy by attracting significant investments—venture capital funding in Egypt's Agri-Tech sector has grown by an estimated 30% annually. Additionally, Agri-Tech companies are creating high-value jobs, with the sector estimating to generate over 50,000 new jobs by 2030, direct jobs within startups and indirect jobs in related industries. Agritech companies often collaborate with universities and research institutions, driving research and development that can lead to further advancements in the sector. Moreover, by improving agricultural productivity and profitability, these startups can help lift rural communities out of poverty, contributing to broader economic development goals.

Addressing Food Security

Food security is a pressing issue in Egypt, with a growing population that demands an ever-increasing food supply. Agri-Tech can help ensure food security by enabling farmers to produce more food with fewer resources. Innovations like advanced fertilization techniques and AI-powered weather and crop monitoring can significantly enhance food production. Successfully implementing connectivity in agriculture could contribute an additional \$500 billion to the global GDP by 2030, boosting the sector's value by 7 to 9%. This increase would ease much of the current strain on farmers, helping to secure food supplies both locally and globally. Additionally, by reducing post-harvest losses—currently a major issue—through better storage and transportation solutions, Agri-Tech startups ensure that more of the produced food reaches the market, directly enhancing food availability.

Facilitating Knowledge Transfer and Training

Agri-Tech startups often play a crucial role in knowledge transfer and training. They introduce farmers to new technologies and practices, providing the necessary training to implement them effectively. This educational aspect is vital in a country where many farmers may not be familiar with the latest advancements in agricultural technology. By bridging this knowledge gap, Agri-Tech startups help farmers adopt more modern, efficient farming methods.

³ McKinsey & Company, Agriculture's connected future: How technology can yield new growth, 2020



Agri-Tech Ecosystem Map

STRATEGY FORMATION & POLICYMAKING



REGULATORY BODIES



MONITORING & EVALUATION



UNIVERSITIES & APPLIED



Agri-Tech Ecosystem Map

INTERNATIONAL ORGANIZATIONS



R&D LABS



SCIENCE & BUSINESS PARKS



MICRO-FINANCE ORGANIZATIONS



Agri-Tech Ecosystem Map

INCUBATORS & PRE-INCUBATORS



ACCELERATORS



ENTREPRENEURSHIP SUPPORT PROGRAMS



BANKING SECTOR



Agri-Tech Ecosystem Map

INTELLECTUAL PROPERTY RIGHTS (IPRs)



Eye Catchers



Agri-Tech Sector Lifecycle

Number of Agri-Tech Startups by Year of Foundation

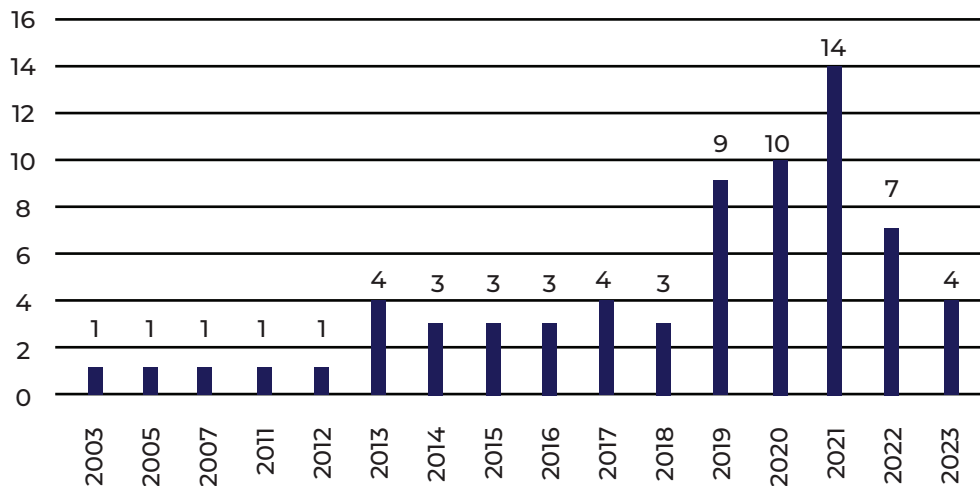


Figure 5.1

The provided data outlines the distribution of Agri-Tech startups based on their founding years. It reveals a pattern of growth in the sector, with a generally increasing trend in the number of startups established over time. Notable increases are observed in certain years, particularly in 2019, 2020, and 2021, suggesting potential surges in entrepreneurial activity or increased interest in agricultural technology solutions during those periods.

However, it's crucial to interpret these numbers with caution. They are estimations and might not capture the full scope of startup activity accurately. Additionally, the analysis does not account for startups that may have exited the market, hence the figures may not represent the current number of active startups in the sector.

While the data offers valuable insights into the growth trajectory of agricultural technology startups, it's essential to acknowledge its limitations and consider additional factors for a comprehensive understanding of the sector's dynamics.

Agri-Tech Subsectors & Technologies

Egypt's Agri-Tech landscape is characterized by a diverse range of subsectors and cutting-edge technologies aimed at revolutionizing the agricultural industry. From retail solutions to advanced AI-driven precision agriculture, Egypt's Agri-Tech startups are leveraging a multitude of technologies to address various challenges and opportunities in the sector. With a focus on sustainability, efficiency, and innovation, these startups are poised to drive significant transformation in Egypt's agriculture sector in the years to come.

Technologies

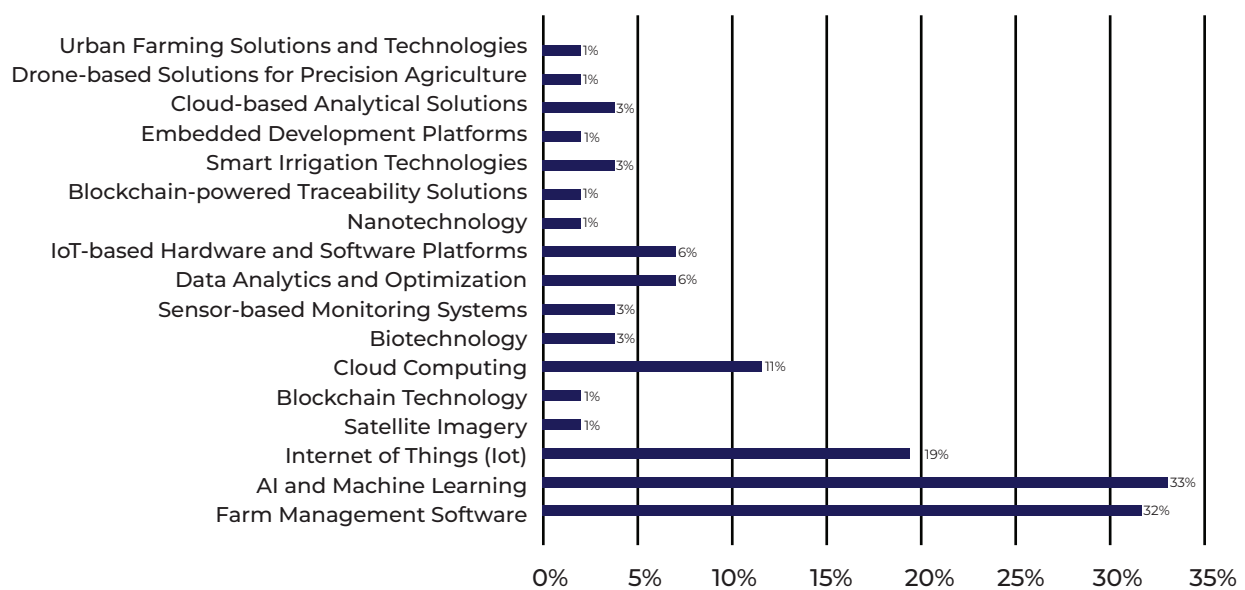


Figure 5.2

Subsectors

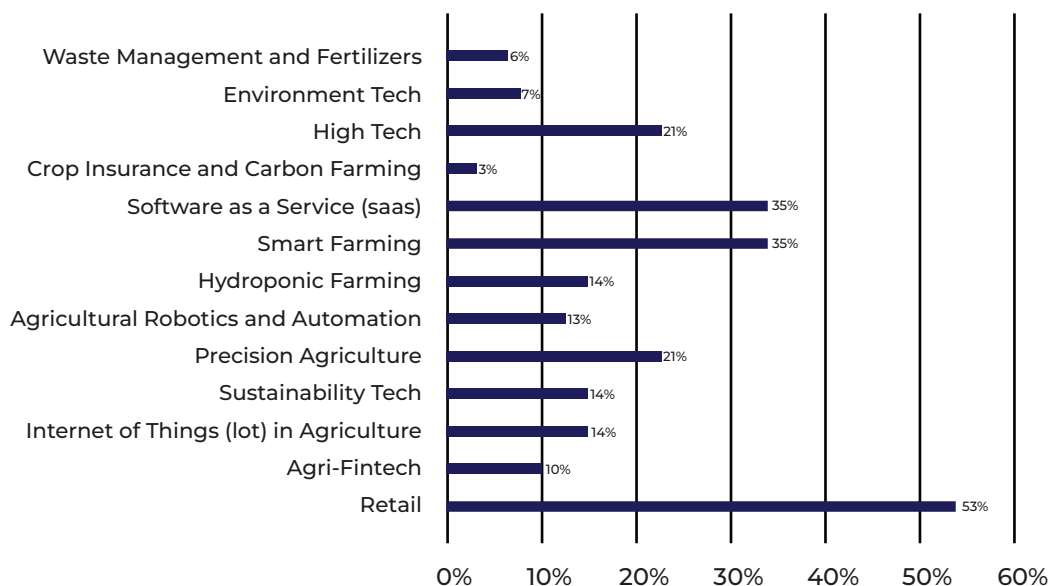


Figure 5.3

Analyzing the technology and subsector distribution among Agri-Tech startups in Egypt reveals several noteworthy trends. The prevalence of retail-focused startups highlights a burgeoning market for online agricultural product distribution, indicative of a shift towards digital platforms for accessing farming essentials. Additionally, the substantial presence of startups engaged in smart farming and software as a service (SaaS) underscores the industry's adoption of advanced technological solutions to optimize agricultural processes and enhance efficiency. Precision agriculture, with a significant representation among startups, reflects a growing emphasis on data-driven approaches to crop management, aiming to maximize yield while minimizing resource inputs. The relatively lower percentages in subsectors like environment tech and waste management underscore potential areas for further innovation and investment in sustainable agricultural practices. Moreover, the widespread utilization of AI and machine learning technologies signals a drive towards data-driven decision-making and automation across various facets of agricultural operations, promising increased productivity and sustainability in Egypt's Agri-Tech landscape.

It's important to note that many Agri-Tech startups in Egypt operate across multiple subsectors and employ a diverse array of technologies to deliver comprehensive solutions. This analysis provides insights into the availability of various subsectors and the percentage of adoption of different technologies within the Agri-Tech ecosystem. Startups often leverage a combination of technologies and approaches to address complex challenges in agriculture, reflecting a holistic approach to innovation and problem-solving within the industry. This multifaceted landscape underscores the dynamism and versatility of Egypt's Agri-Tech sector, where interdisciplinary collaboration and integration of diverse technologies drive continuous advancement and growth.



Investments

Investments in Agri-Tech Sector Startups

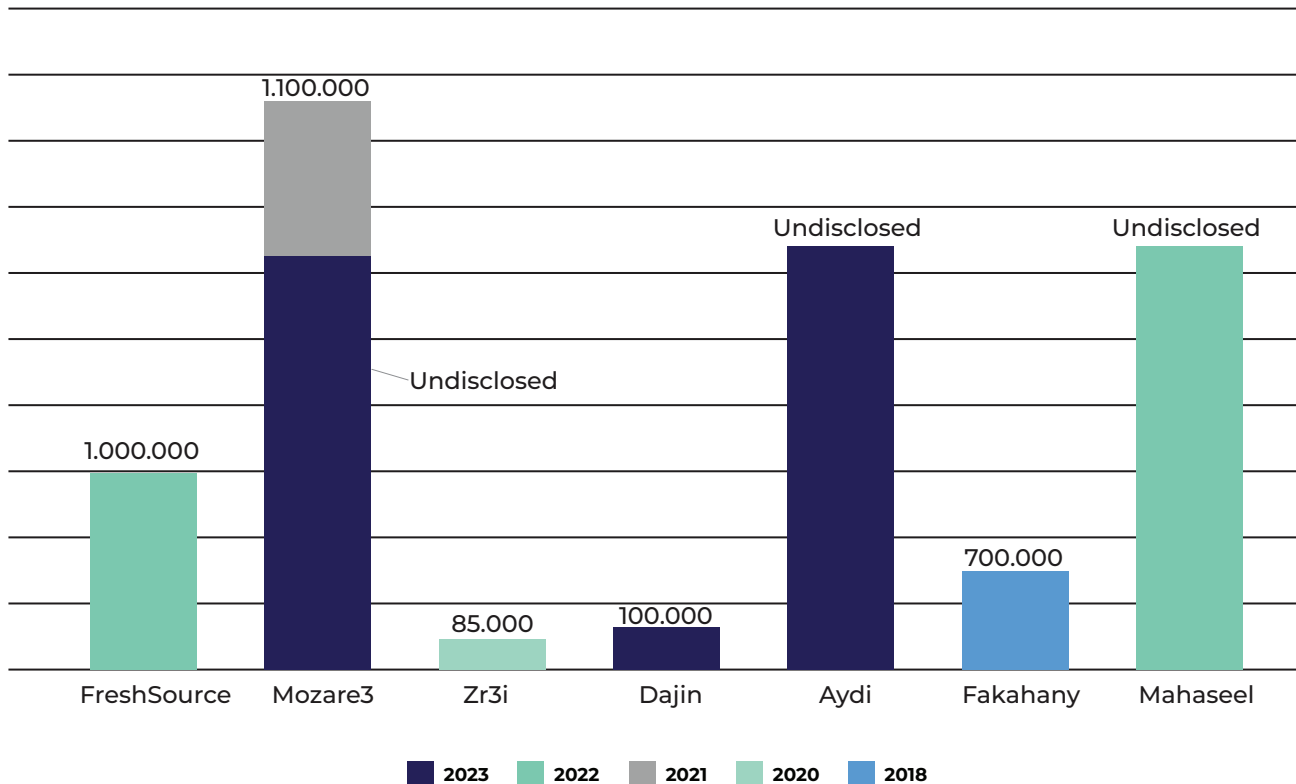


Figure 5.4

The investments in Agri-Tech startups over the past few years have shown weakened interest and varied funding amounts. FreshSource received a substantial investment of \$1 million in 2022, indicating strong confidence in their potential. Mozare3 had an impressive \$1.1 million investment in 2021, though the amount for 2023 remains undisclosed, likely in the seven-figure range. Zr3i received a modest investment of \$85k in 2020. Dajin secured \$100k in 2023, while Aydi's funding details for 2023 are undisclosed, also likely in the seven-figure range. Fakahany received \$700k in 2018, highlighting early interest in their venture. Lastly, Mahaseel's funding for 2023 is undisclosed but presumably in the seven-figure range. Overall, the data reflects a diverse range of investments in the Agri-Tech sector, with some startups receiving significant backing while others have undisclosed but likely substantial amounts.

In-depth Interviews



Transforming Egypt's Agri-Supply Chain with Innovation, Sustainability, and Farmer Empowerment: Fresh Source



Omar Emara
Co-Founder & COO

FreshSource, founded in 2019, is the MENA region's first B2B agri-supply chain platform, aiming to revolutionize the sourcing, distribution, and trading of agricultural products through a digital marketplace that connects farmers, suppliers, distributors, and buyers. Addressing Challenges in the Agricultural Sector

FreshSource tackles several key issues in the agricultural sector

- **Fragmented Supply Chain:** Streamlining procurement and distribution to reduce inefficiencies and costs.
- **Lack of Market Transparency:** Providing farmers with real-time market information to ensure fair pricing.
- **Limited Market Access:** Connecting smallholder farmers directly with buyers to expand their reach.
- **Food Waste Reduction:** Reducing food waste by improving supply chain efficiency and storage practices.

Innovative Solutions to Empower Farmers

FreshSource offers a digital platform that enhances market transparency, simplifies transactions between farmers and buyers, and reduces food waste. The platform empowers farmers by increasing their market access, enabling fair pricing, and improving overall supply chain efficiency.

Key Milestones and Impact

FreshSource has achieved significant milestones:

- **Resilient Food Supply System:** Achieved a 2% food loss rate, compared to the national average of 45%.
- **Customer and Geographic Reach:** Collaborated with over 300 customers and expanded operations to 11 governorates.

Challenges in Securing Funding

FreshSource has successfully secured VC backing, but challenges persist, particularly due to the Egyptian macroeconomic climate, which highlights the need for increased awareness of the Agri-Tech sector's importance in the region.

Job Creation and Economic Contribution

FreshSource has directly and indirectly created around 200 jobs, contributing to various functions across the agricultural supply chain, including logistics, procurement, and technology roles.

Future Plans for Expansion and Sustainability

Looking ahead, FreshSource plans to:

1. **Geographic Expansion:** Scale operations to new regions and countries.
2. **Technology Enhancement:** Integrate blockchain, IoT, and machine learning to optimize supply chain processes.
3. **Farmer Empowerment:** Provide access to finance, training, market insights, and agricultural best practices.
4. **Sustainability Initiatives:** Promote organic farming, reduce food waste, and support eco-friendly packaging and logistics.
5. **Outlook on Agri-Tech in Egypt.**
6. We see a promising future for Agri-Tech in Egypt, driven by increasing technology adoption, government support, a thriving innovation ecosystem, and international collaboration. FreshSource aims to contribute to addressing agricultural challenges, enhancing food security, and promoting sustainable development across the region.
7. **Expansion and Scalability:** We plan to further expand our operations geographically, reaching more regions and countries to serve a larger base of farmers and buyers. This expansion will involve strategic partnerships, market research, and tailored approaches to address the specific needs of each market.
8. **Technology Enhancement:** We are committed to continuously enhancing our digital platform with innovative features and functionalities. This includes leveraging emerging technologies such as blockchain, IoT, and machine learning to optimize processes, improve transparency, and increase efficiency throughout the supply chain.

9. **Farmer Empowerment:** We aim to deepen our impact on farmers by providing them with access to additional resources and services that enhance their productivity, profitability, and sustainability. This may include access to finance, training and capacity building, market insights, and agricultural best practices.
10. **Sustainability Initiatives:** FreshSource is dedicated to promoting sustainable agricultural practices and environmental stewardship. We will integrate sustainability initiatives into our platform, such as promoting organic farming, reducing food waste, and supporting eco-friendly packaging and logistics solutions.



Section 6:
**Dissection of
Agri-Tech Challenges &
Opportunities in Egypt**

Survey Methodology

The survey was meticulously designed to gather comprehensive information about Agri-Tech startups in Egypt, focusing on various aspects such as operational details, funding status, challenges, workforce, market dynamics, and regulatory environment. A combination of open-ended and closed-ended questions was utilized to capture both quantitative and qualitative data, ensuring a holistic view of the Egyptian Agri-Tech landscape.

The survey begins by identifying and gathering background information about startups. Participants were asked about the name of their Agri-Tech startup, the founding year, and the specific sub-sector of Agri-Tech in which they operate. This foundational data helps contextualize the responses and allows for sector-specific analysis.

To understand the financial health and funding status of these startups, questions were posed regarding their funding stage, the number of full-time and part-time employees, revenue generation, and overall business status. Further inquiries explore the level of satisfaction with current funding access and identify the major obstacles faced in securing necessary funds. This section aims to paint a clear picture of the financial landscape and the challenges therein.

The survey also delves into the venture capital and investment landscape, gauging satisfaction with current VC interest in Agri-Tech startups and exploring the perceived need for specialized investment vehicles. Questions about the potential benefits of government grants or tax breaks are included to assess the role of public support in the growth of these startups.

Workforce and skill-related questions are integral to understanding the human capital challenges in the Agri-Tech sector. Respondents were asked about the difficulty in finding qualified individuals, the specific skill sets that are hard to recruit, and the emerging skills that will be in demand. This section also examines the sufficiency of educational programs focused on Agri-Tech, providing insights into the talent pipeline.

The survey investigates market dynamics and technology adoption by exploring the willingness of farmers to adopt new technologies, identifying the barriers to technology adoption, and suggesting ways to better educate and incentivize farmers. Additionally, questions about the difficulty in reaching the target market and the level of competition within the Agri-Tech sector provide a thorough understanding of market challenges and competitive strategies.

The impact of technological advancements is another critical area covered in the survey. Questions in this section focused on the emerging technologies that will significantly impact the future of Agri-Tech, and how startups are leveraging these advancements to address challenges and create value within their sub-sectors.

Finally, the survey addresses the regulatory environment by asking about the ease of obtaining necessary government licenses and registrations, the duration of the licensing process, and any unnecessary steps or redundancies encountered. It evaluates the supportiveness of current government policies towards Agri-Tech startups in Egypt and identifies specific regulations or policies that hinder development. Respondents are also asked to recommend policy changes to foster a more favorable environment for Agri-Tech innovation.

Data Collection and Analysis

Data was collected online from founders and key executives of 18 Agri-Tech startups through a secure survey platform, ensuring confidentiality and integrity. Quantitative data was analyzed using statistical methods to identify trends and patterns, while qualitative data was coded and analyzed to extract key themes and insights. The results were compiled into a comprehensive report, highlighting challenges, opportunities, and recommendations for the Agri-Tech sector.



Survey Findings

01 Overview

Overview

Subsectors Operations

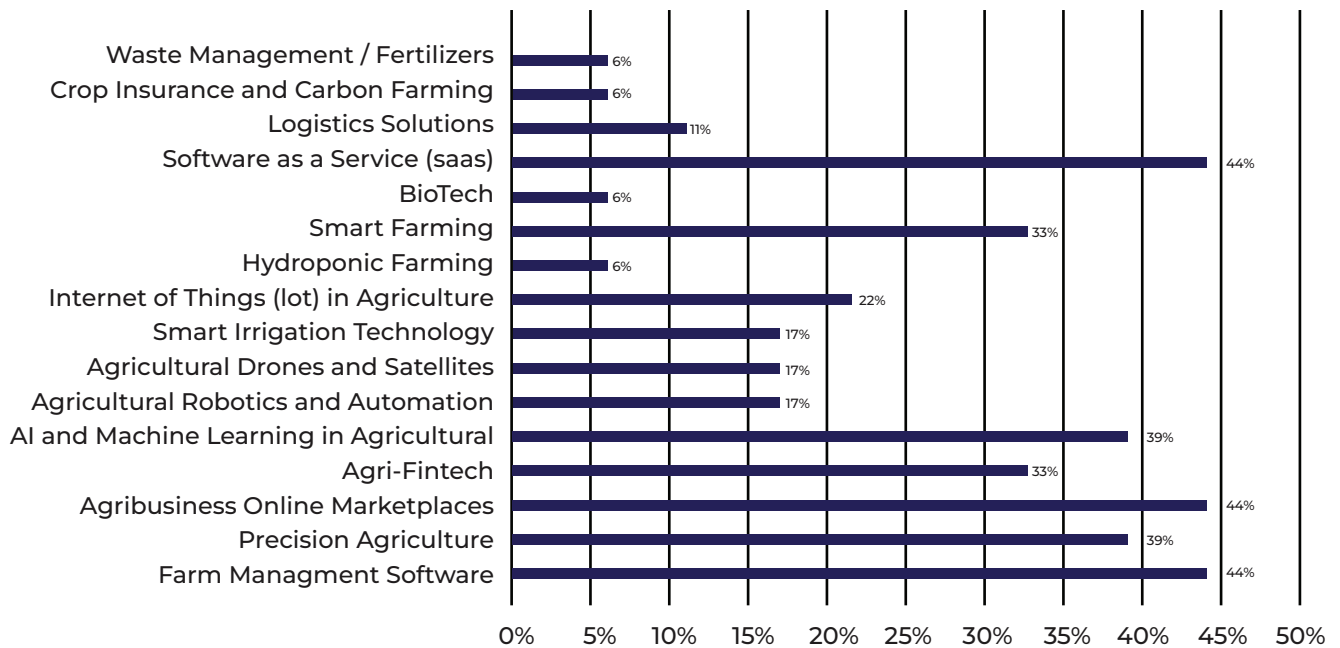


Figure 6.1.1

The data reveals that the most common sub-sectors for Agri-Tech startups are Farm Management Software, Agribusiness Online Marketplaces, and Software as a Service (SaaS), each operating at 44%. Other significant sub-sectors include Precision Agriculture and AI and Machine Learning in Agriculture, both at 39%. This diversity indicates a broad interest and potential for innovation across multiple areas within Agri-Tech.

(It's important to note that many Agri-Tech startups operate across multiple subsectors).

Startups by Foundation Year

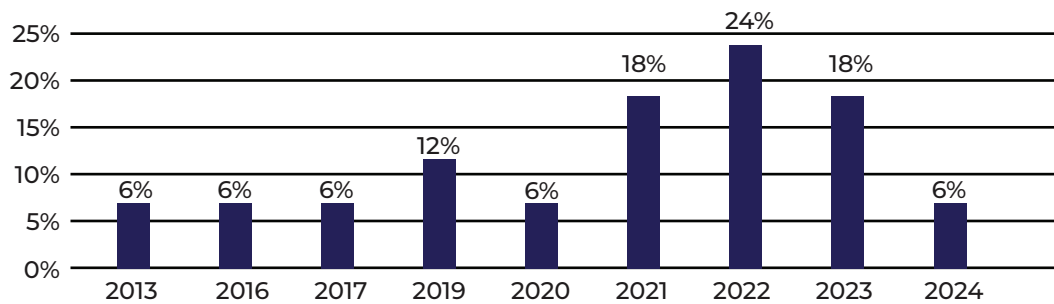


Figure 6.1.2

A notable trend is that the majority of these startups were founded between 2021 and 2023, reflecting a recent surge in the establishment of Agri-Tech ventures. This recent growth may suggest an increasing recognition of the sector's potential and the pressing need for technological advancements in agriculture.

(It's worth noting that the previous findings do not include 1 startup that is still in the concept/ideation stage).

Funding Stages

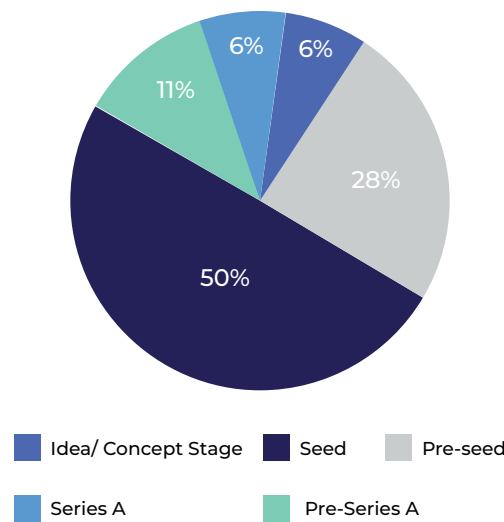


Figure 6.1.3

In terms of funding stages, 50% of the startups are in the Seed stage, indicating they have moved beyond the initial concept and are in the process of developing their products or services. Meanwhile, 28% are in the Pre-Seed stage, 11% are in Pre-Series A, and 6% have reached Series A. Only 6% are still at the Idea/Concept stage. This distribution suggests that while there is progress, many startups are still in early developmental phases.

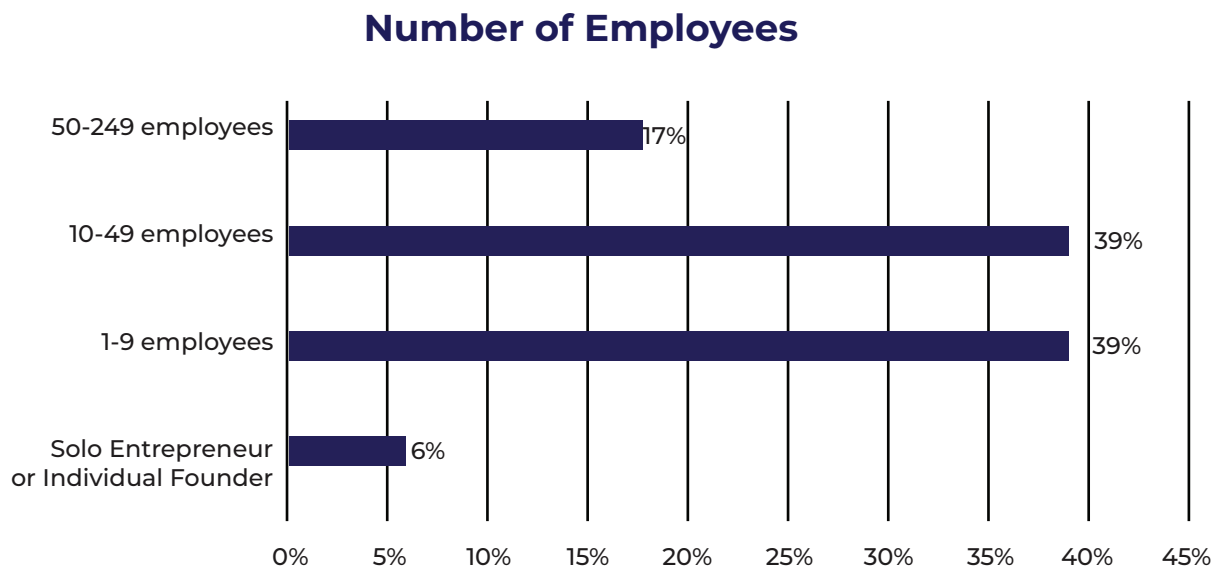


Figure 6.1.4

Regarding startup sizes, the data shows that 39% of startups have 1-9 employees and another 39% have 10-49 employees, while 17% have 50-249 employees. Only 6% are solo entrepreneurs.

Startups Generating Revenues

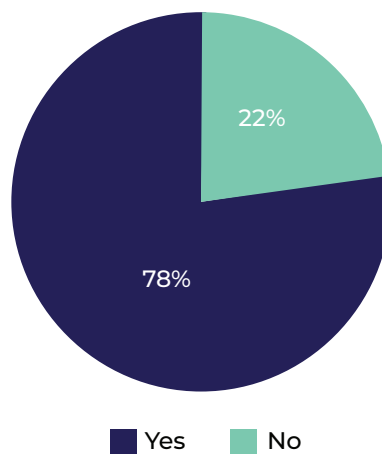


Figure 6.1.5

A significant 78% of these startups are generating revenue, which is a positive sign of market acceptance and viability. However, 22% are not yet generating revenue.

02

Funding & Investments

Funding & Investment

Access to Funding Satisfaction

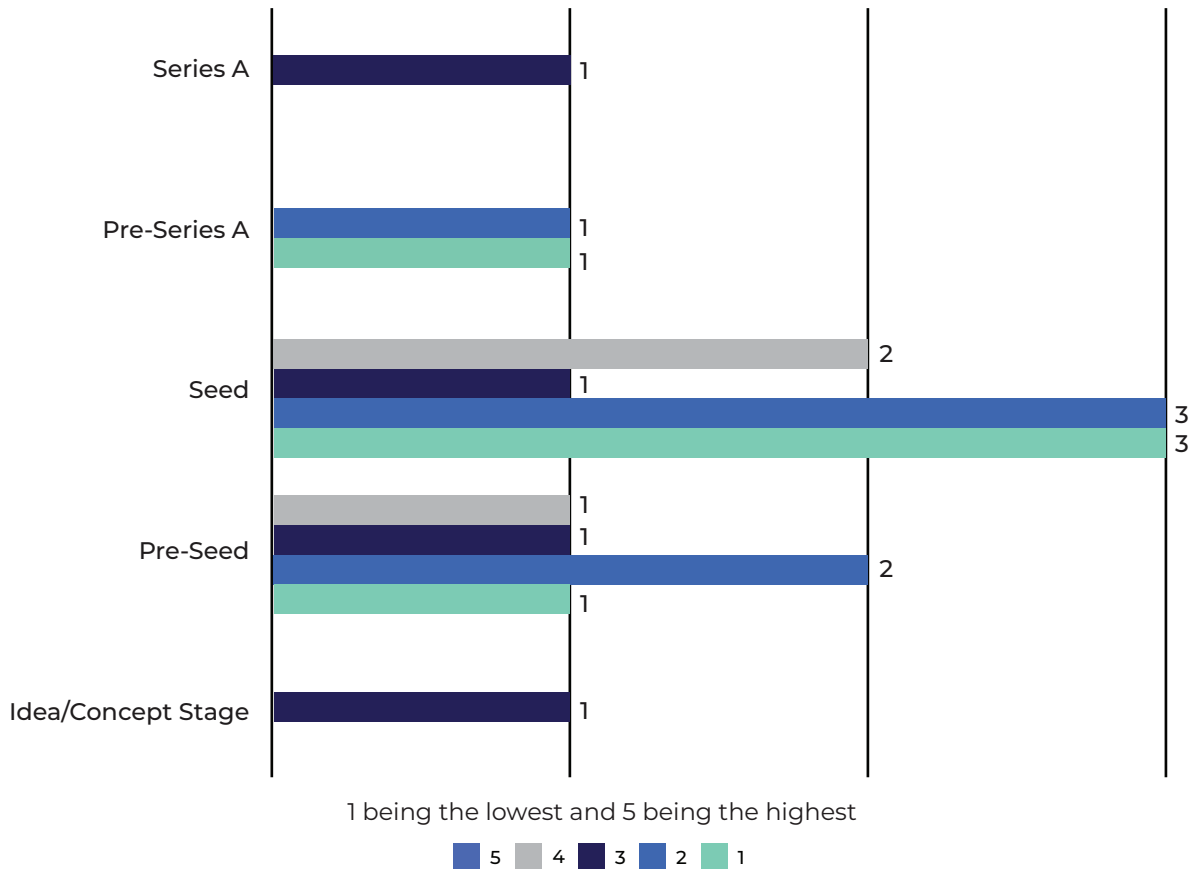


Figure 6.2.1

When it comes to satisfaction with the current level of access to funding, the overall weighted average is low at 2.3. The highest dissatisfaction rates (scales 1 and 2) account for 61%, showing a considerable level of frustration among startups. Only 17% expressed satisfaction (scale 4), and none rated their satisfaction at the highest level (scale 5).

Satisfaction with VC Interest in Agri-Tech

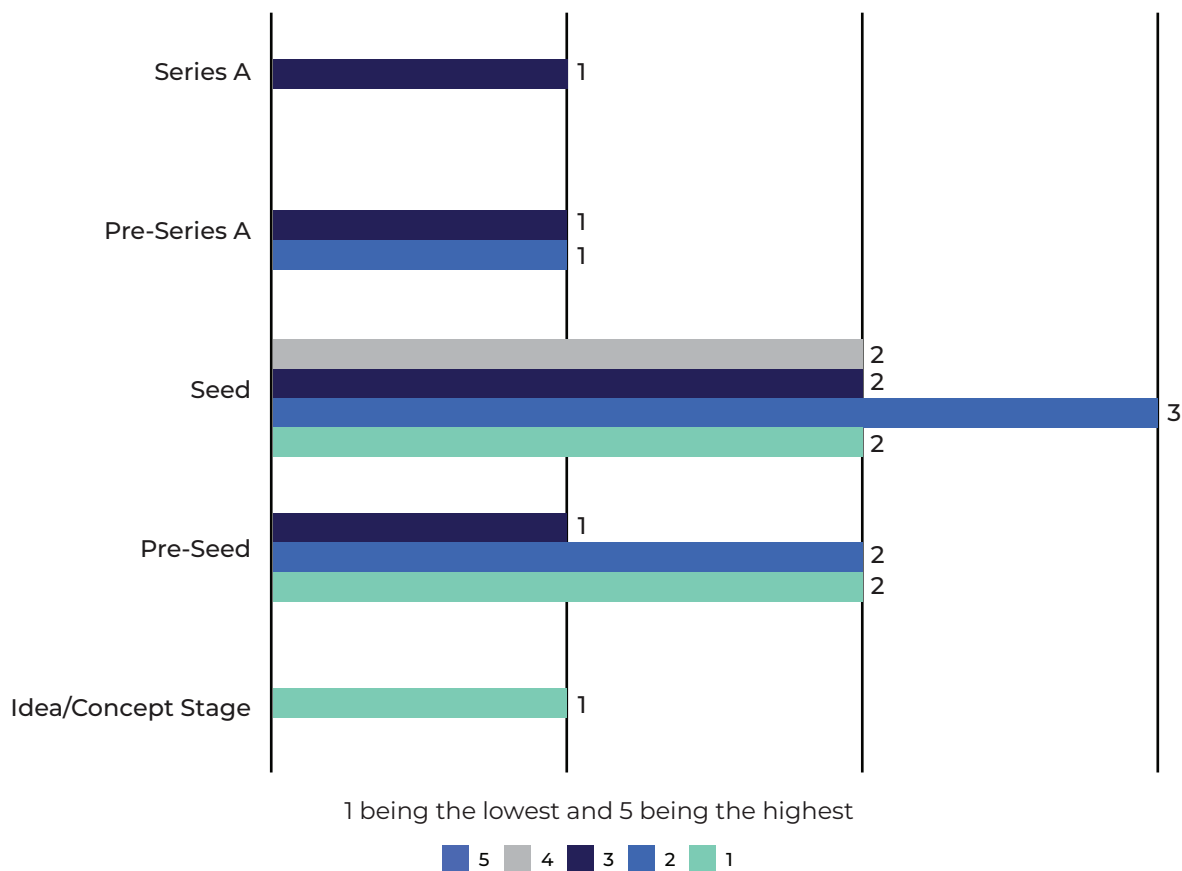


Figure 6.2.2

Satisfaction with the VC landscape's interest in funding Agri-Tech startups is similarly low, with an overall weighted average of 2.2. The dissatisfaction rates (scales 1 and 2) are again high at 61%, while 28% are neutral, and only 11% express some level of satisfaction.

Obstacles in Securing Funding

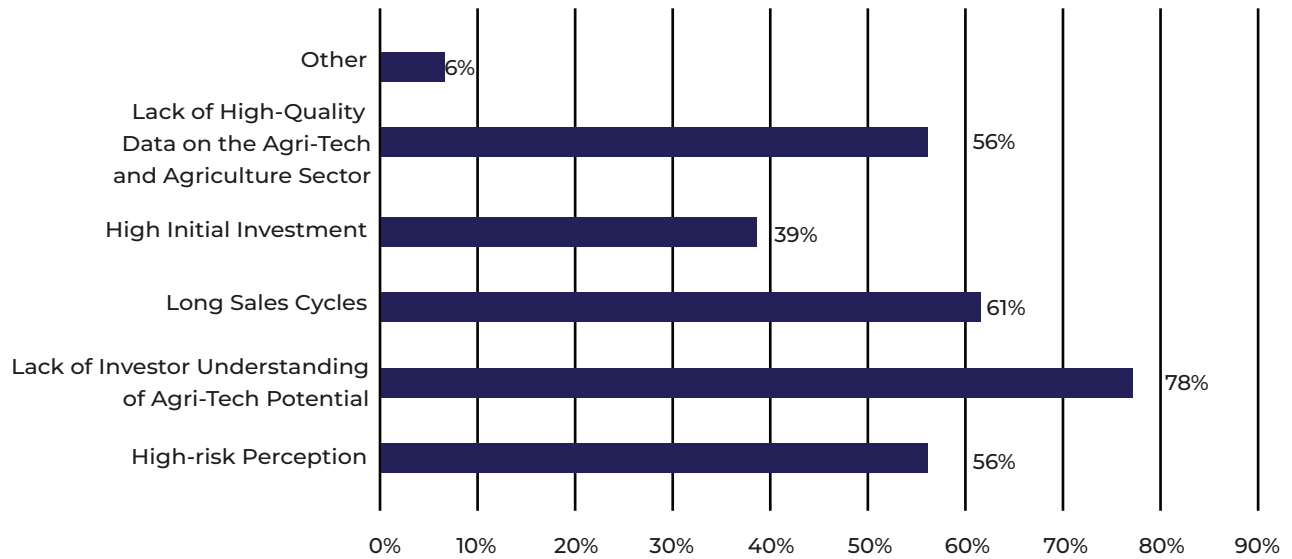


Figure 6.2.3

The most significant obstacles in securing funding are a lack of investor understanding of Agri-Tech potential (78%), long sales cycles (61%), and high-risk perception due to agriculture's inherent risks (56%). Additionally, the lack of high-quality and reliable data on the Agri-Tech and/or Agriculture sector (56%) and high initial investment requirements (39%) are also major barriers. Only 6% cited systemic market risks and uncertainties specific to the Egyptian market as other additional challenges.

The Need for Specialized Investment Vehicles Focused on Agri-Tech Companies

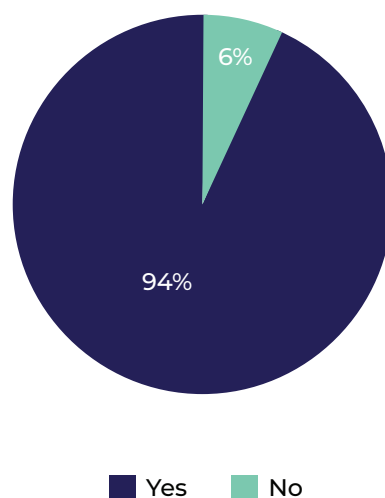


Figure 6.2.4

⁴Long Sales Cycles: as this can lead to slower adoption rates as farmers research, test, and decide if a new technology is worth integrating into their operations. Investors may be wary of funding solutions that take a long time to generate significant revenue.

The Need for Government Grants or Tax Breaks

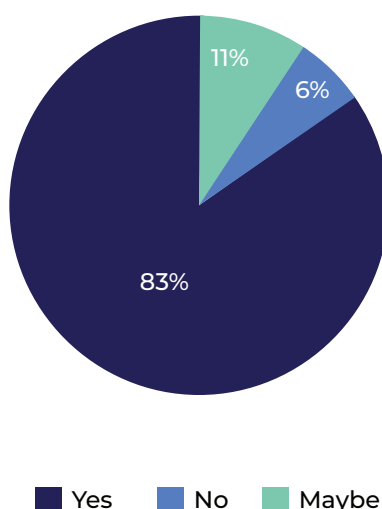


Figure 6.2.5

There is a strong consensus (94%) on the need for specialized investment vehicles focused on Agri-Tech companies. Additionally, 83% believe that government grants or tax breaks would be helpful, with 11% saying maybe, and only 6% feeling they wouldn't be helpful.

⁵High-risk perception: Agriculture has inherent risks like weather dependence and fluctuating commodity prices. Investors may view Agri-Tech as riskier than other sectors.

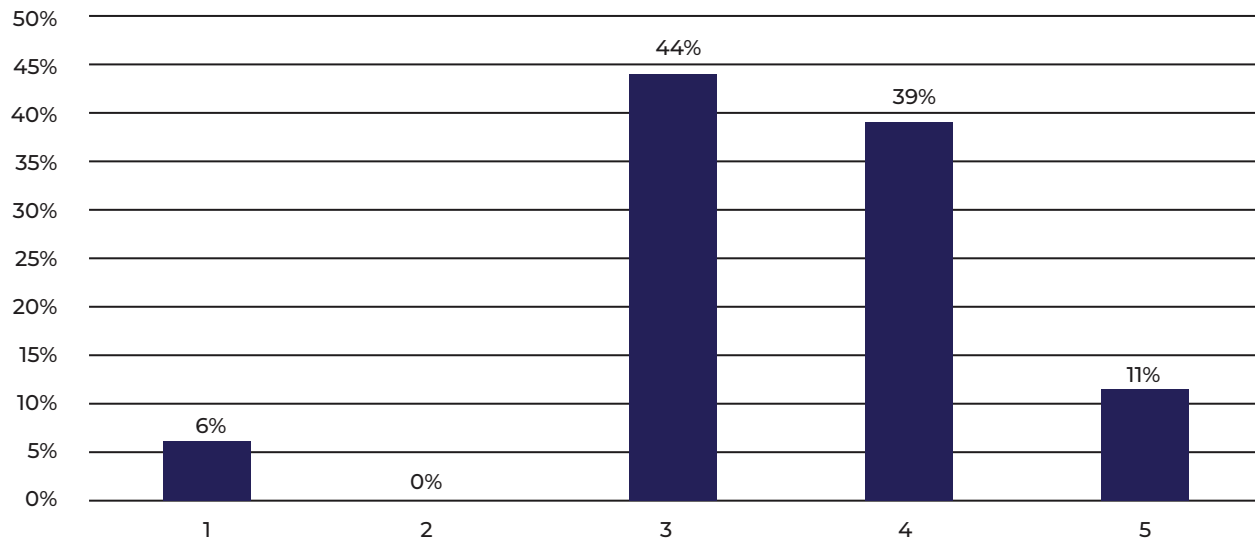
⁶High Initial Investment: developing new technologies or infrastructure for agriculture often requires significant upfront costs. This can be a barrier for startups, especially since they may not have a proven track record of success to secure larger funding rounds.



03 Talent Acquisition

Talent Acquisition

Difficulty to Find Qualified Individuals



1 being the lowest and 5 being the highest

Figure 6.3.1

Skill Sets that are Challenging to Recruit

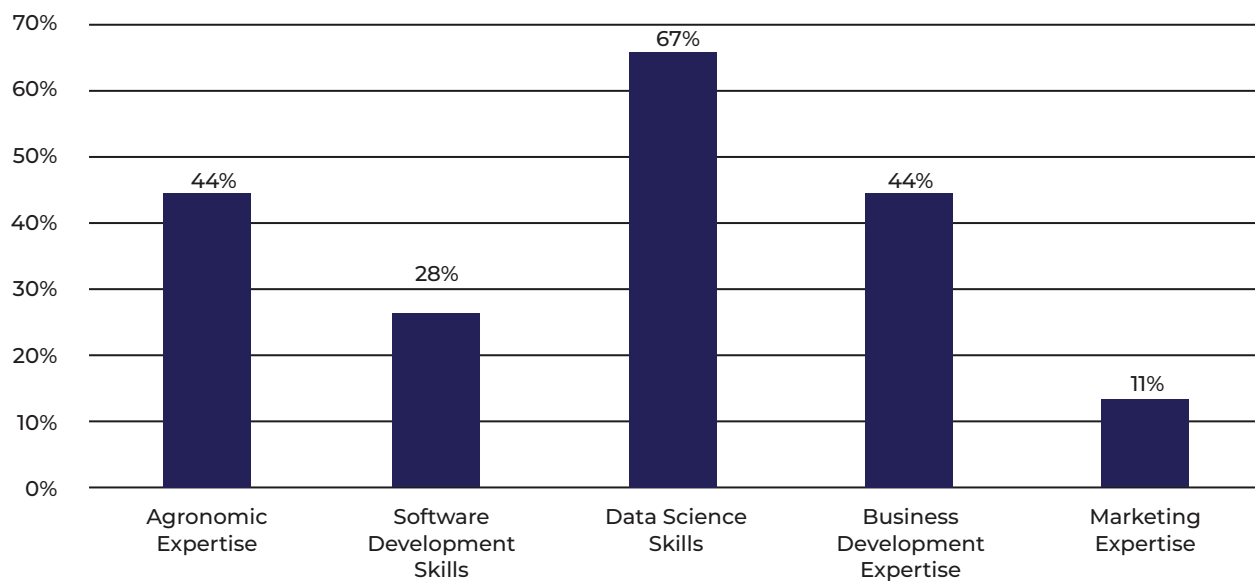


Figure 6.3.2

Talent Acquisition

Finding qualified individuals with the necessary skills is notably difficult, with an overall difficulty rating of 3.5. A significant 94% of respondents rated the challenge at scale of 3 or above. The most challenging skill sets to recruit for include data science (67%), agronomic expertise (44%), and business development (44%). Software development skills (28%) and marketing expertise (11%) are also in demand, highlighting a broad spectrum of skill gaps.

Emerging Skill Sets in the Agri-Tech Industry

In the rapidly evolving Agri-Tech industry, several skill sets are emerging as particularly valuable. Agriculture engineers who can leverage the latest technologies are in high demand, along with data scientists and engineers who can analyze and manage agricultural data. AI experts are crucial for developing intelligent agricultural systems, while hydroponic experts specialize in soil-less farming techniques. Professional production managers are essential for operating plant factories, and material engineers play a significant role in developing innovative agricultural materials. Additionally, biomass engineers focus on sustainable chemical processes. Sustainability experts with knowledge in agroecology and regenerative agriculture are also gaining prominence, reflecting the global trend toward sustainable farming practices. Furthermore, soft skills are critical for running an Agri-Tech business and influencing farmers to adopt new technologies. Sales and design professionals, as well as supply chain and post-harvest experts, are necessary for market expansion and efficient agricultural logistics. Precise weather forecasting skills are also essential for crop planning and risk management.

Are There Enough Educational Programs Focused Are Agri-Tech to Create a Strong Talent Pool?

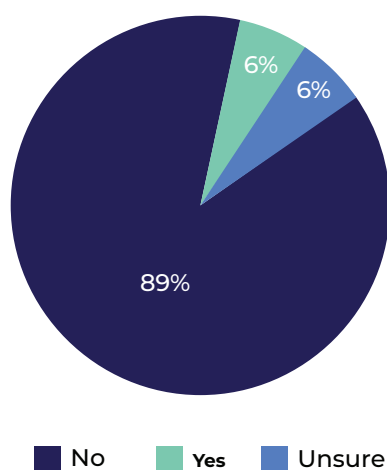
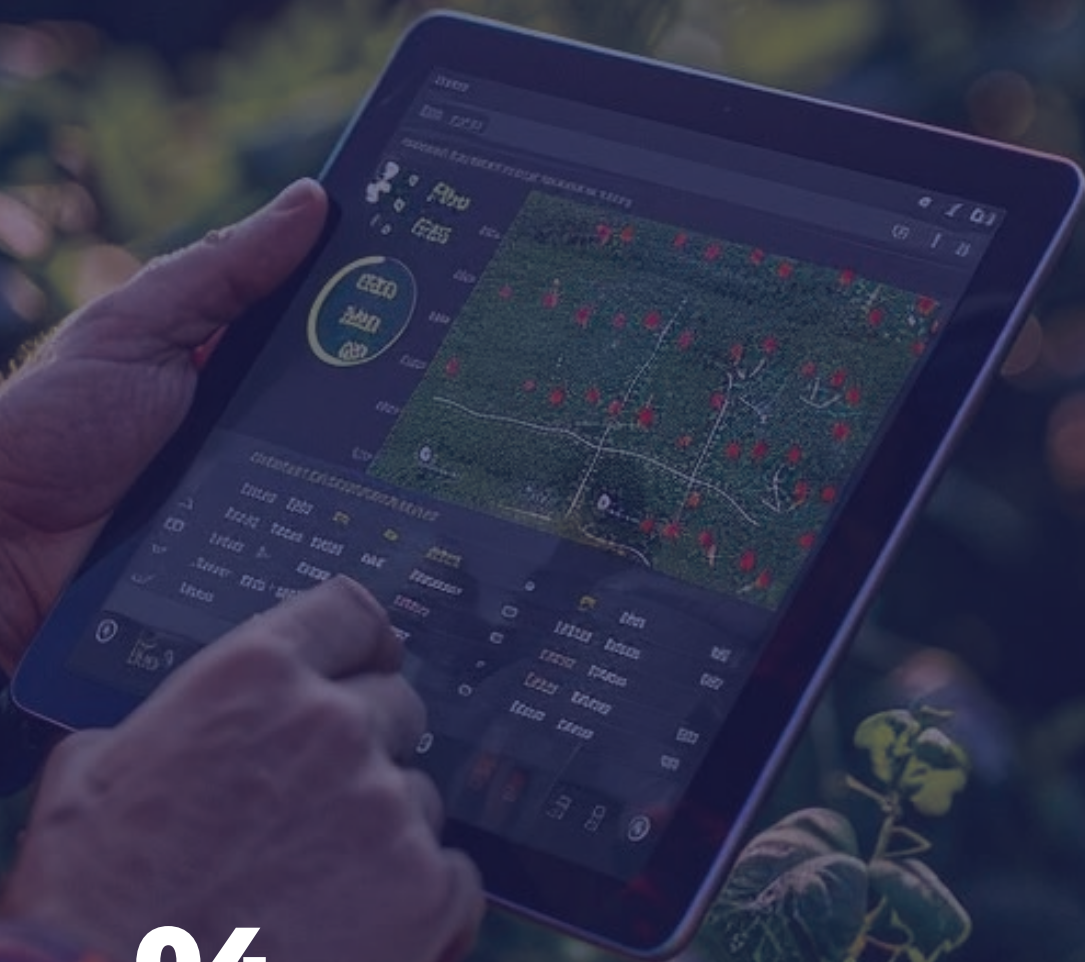


Figure 6.3.3

An overwhelming 89% of respondents believe there are not enough educational programs focused on Agri-Tech to create a strong talent pool, with only 6% feeling there are sufficient programs and another 6% unsure. This indicates a clear need for more specialized educational initiatives to support the industry.



04 Technology Adoption by Farmers

Technology Adoption by Farmers

Farmers' Willingness to Adopt New Technologies

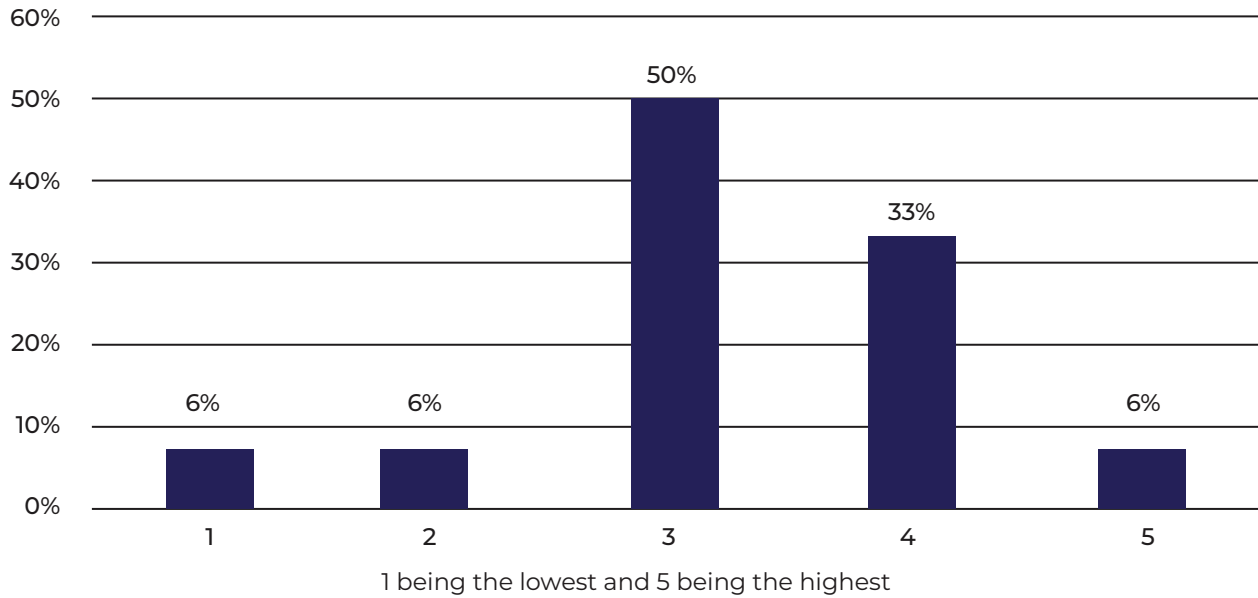


Figure 6.4.1

Startups rated the willingness of farmers in their target markets to adopt new technologies at a moderate level of acceptance, with an overall weighted average of 3.3. While 50% of respondents rated farmers' willingness at a neutral level (scale 3), 33% indicated a higher willingness (scale 4), and only 6% expressed the highest level of willingness (scale 5). However, 12% rated farmers' willingness as low (scales 1 and 2).

Biggest Barriers to Technology Adoption Among Farmers

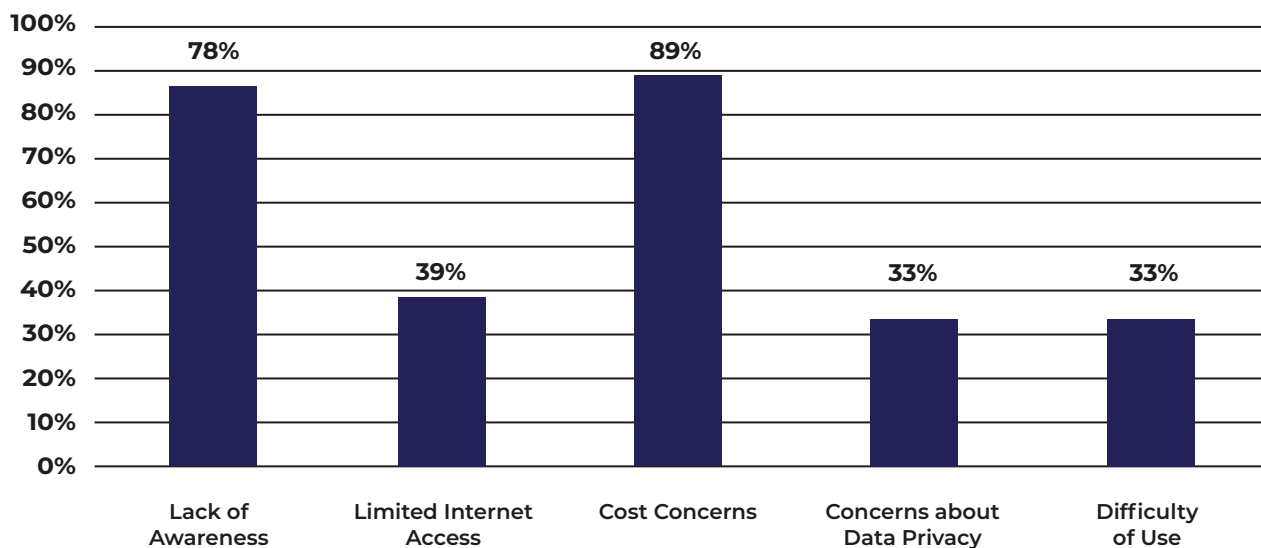


Figure 6.4.2

The biggest barriers to technology adoption among farmers include cost concerns (89%) and a lack of awareness (78%). Limited internet access (39%) and concerns about data privacy and difficulty of use (both 33%) also pose significant challenges. These barriers highlight the need for better awareness programs, cost-effective solutions, and user-friendly technologies to facilitate wider adoption.

Educating and Incentivizing Farmers to Adopt New Technologies

To encourage the adoption of new technologies, Agri-Tech startups employ several effective strategies. Partnering with universities, agri-development organizations, and local agricultural communities can help disseminate knowledge and build trust. On-ground marketing through field schools and demonstration plots can show farmers the tangible benefits of new technologies. Creating culturally relevant educational content in local languages and partnering with trusted local channels ensures that information is accessible and resonates with farmers. Interactive learning platforms, such as mobile apps and peer-to-peer learning programs, can make education engaging and practical. Incentives like free trials, subsidies, performance-based rewards, and success stories can motivate farmers to try new solutions.

05 Market Access & Competition

Market Access & Competition

Difficulty to Reach your Target Market of Farmers, Agricultural Businesses, & Distributors

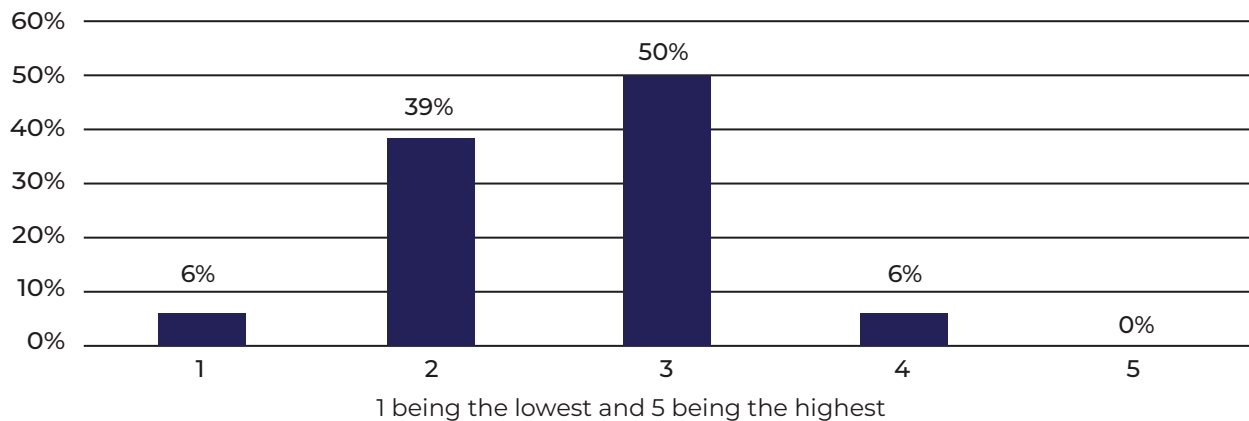


Figure 6.5.1

Reaching the target market of farmers, agricultural businesses, and distributors is perceived as moderately challenging, with an overall difficulty rating of 2.6. The majority of respondents rated the difficulty at a moderate level (scale 3) at 50%. A significant portion, 39%, rated it as relatively easy (scale 2), while only 6% rated it as very easy (scale 1). No respondents rated it at the highest difficulty level (scale 5).

The Level of Competition within the Agri-Tech Sector

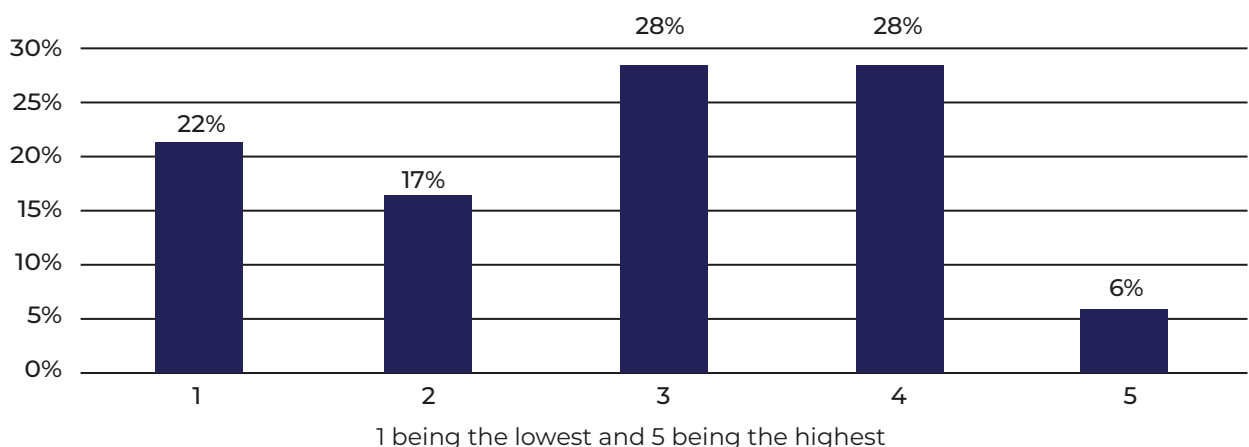


Figure 6.5.2

The level of competition within the Agri-Tech sector is perceived as moderate, with an overall weighted average of 2.8. The responses were distributed fairly evenly across the scales, with the highest percentages at scales 3 and 4 (both 28%).

Differentiating Agri-Tech Startups from Competitors in the Market

Agri-Tech startups differentiate themselves from competitors through various strategies. Continuous innovation and the development of cutting-edge technology are vital. Offering high-quality products at affordable prices with customization can attract a wide customer base. A farmer-centric approach, focusing on practical solutions tailored to local farming challenges, can build strong relationships with the farming community. Providing a holistic suite of services, including data analysis, financial solutions, and market access, can set a startup apart. Emphasizing financial inclusion by offering microloans, insurance, and financial literacy training can empower farmers. Maintaining a strong network of field agents for localized support ensures that farmers receive personalized assistance. Forming partnerships with universities, research institutions, and government agencies can enhance expertise and resources. Developing unique business models, such as farm-to-fork services or comprehensive after-sales support, can also create a competitive edge.





06

Entrepreneurial Activity & Job Creation

Entrepreneurial Activity & Job Creation

Awareness of the Resources Available to Support Entrepreneurs

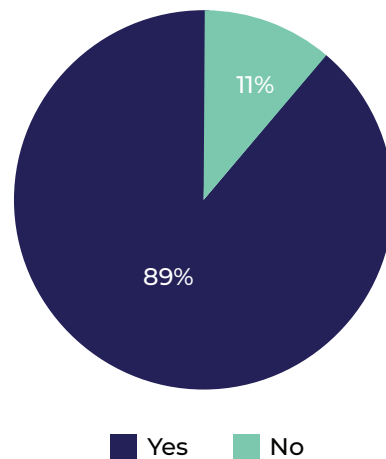


Figure 6.6.1

A significant majority (89%) of respondents are aware of resources available to support entrepreneurs, such as incubators, accelerators, and mentorship programs. This awareness is crucial for startups to leverage available support systems for growth and development.

Optimism about the Job Creation Potential of Agri-Tech Startups in the Next 3-5 Years

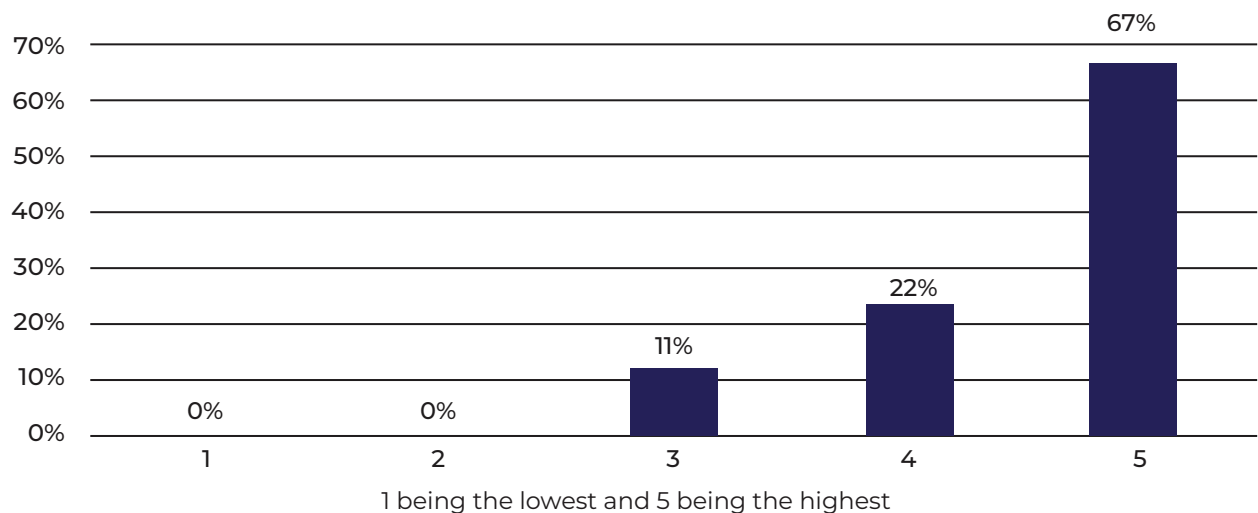


Figure 6.6.2

There is a high level of optimism about the job creation potential of Agri-Tech startups, with an overall weighted average of 4.6. A significant 67% of respondents rated their optimism at the highest level (scale 5), and 22% rated it at scale 4.

Creating Job Opportunities in Rural Communities

Agri-Tech startups can play a significant role in creating job opportunities in rural communities. By reducing operational costs and increasing profits, startups can enable farms to hire more workers. Training programs that teach new technologies and enhance employability can equip local residents with valuable skills. Facilitating entrepreneurial opportunities for local service providers can stimulate economic growth. Hiring field agents and support staff for data collection and farmer training creates direct job opportunities. Additionally, creating demand for skilled positions such as data analysts and agricultural consultants can attract talent to rural areas. Employing workers on commission can reduce production costs and mitigate risks while teaching new skills for independent agricultural projects can foster self-employment.



A person is using a tablet to monitor plant growth in a greenhouse. The tablet screen shows a close-up of several small green seedlings growing in dark soil. The person's hand is visible holding the tablet, and another hand is holding a small test tube with a white cap. The background is a blurred view of the greenhouse interior, showing rows of plants and overhead lighting.

07 Technological Advancements

Technology Advancements

Emerging Technologies that will have the most Significant Impact on the Future of Agri-Tech

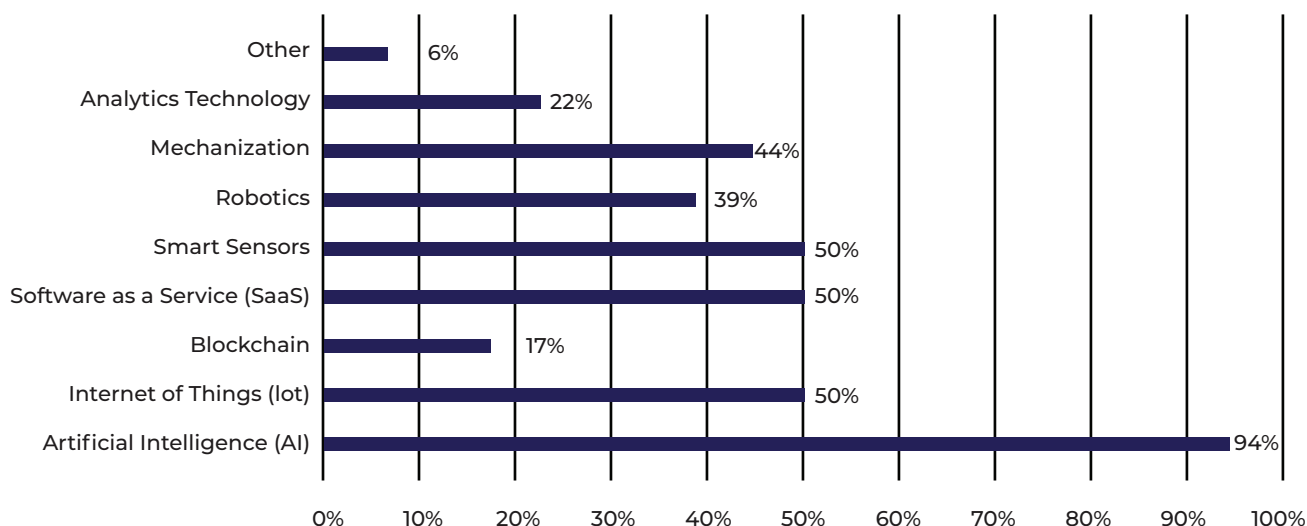


Figure 6.7.1

Artificial Intelligence (AI) is seen as the most impactful emerging technology, with 94% of respondents citing it. Other significant technologies include the Internet of Things (IoT) (50%), Software as a Service (SaaS) (50%), Smart Sensors (50%), Robotics (39%), and Mechanization (44%).

Leveraging Technological Advancements

Agri-Tech startups are leveraging technological advancements to address challenges and create value within their sub-sectors. Integrating AI and IoT into farm management systems can improve efficiency and productivity. Biotechnology is used to develop innovative solutions like organic fertilizers that enhance soil productivity and reduce irrigation needs. Financial technology (Fin-Tech) solutions, such as micro-loans and insurance, provide farmers with access to financial products traditionally unavailable through conventional channels. Data-driven decision-making helps farmers manage their farms more effectively, while digital platforms offer educational content and facilitate knowledge sharing. Automation systems streamline agricultural operations, further boosting productivity and reducing labor costs.

A background image showing a person's hands using a tablet in a field. The person is wearing a plaid shirt and is standing in a field of young plants. The tablet is held in their left hand, and their right hand is touching the screen. The background is a soft-focus field of green plants under a warm, golden light, suggesting a sunset or sunrise. The overall tone is professional and innovative, representing the intersection of technology and agriculture.

08

Government Policies

Government Policies

Ease of Obtaining the Necessary Government Licenses & Registration to Operate

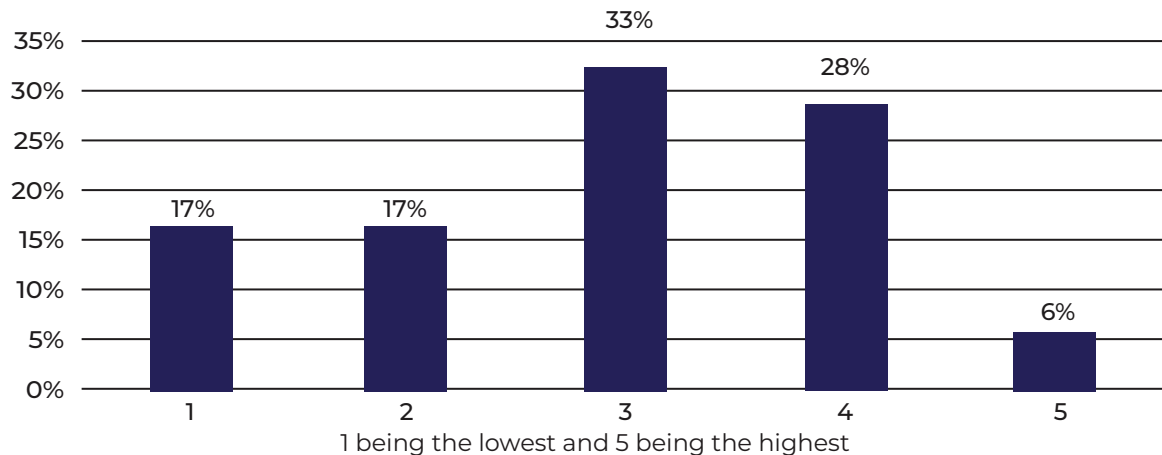


Figure 6.8.1

The process of obtaining government licenses and registrations is perceived as moderately difficult, with an overall weighted average of 2.9. While 33% of respondents rated the process at scale 3, indicating a moderate level of difficulty, 34% found it more difficult (scales 1 and 2), and 34% found it easier (scales 4 and 5).

Duration of Government Licensing and Registration Process

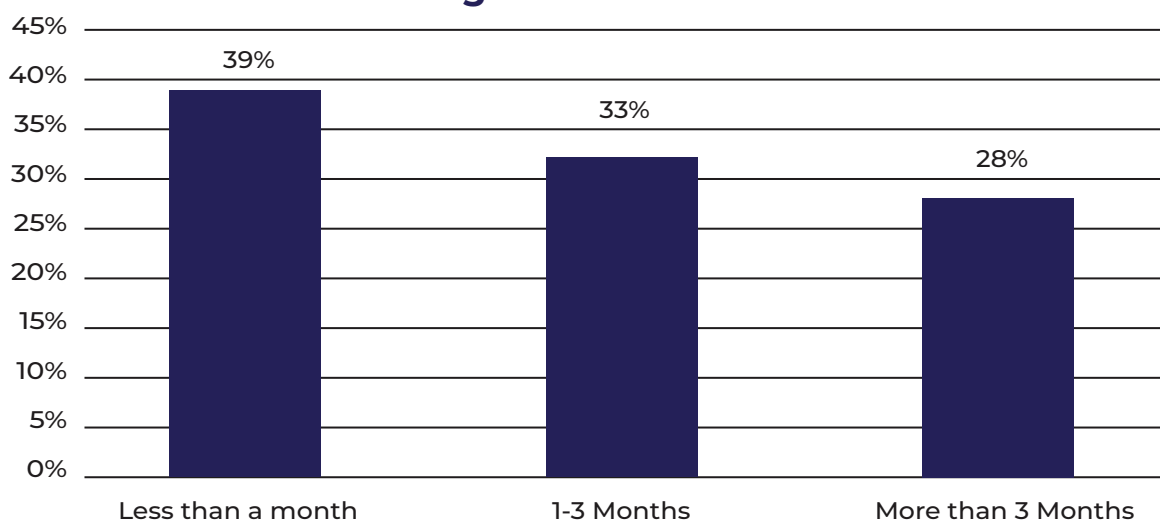


Figure 6.8.2

The licensing process duration varied, with 39% of respondents completing it in less than a month, 33% taking 1-3 months, and 28% taking more than 3 months.

Were there Unnecessary Steps or Redundancies in the Government Licensing & Registration Process?

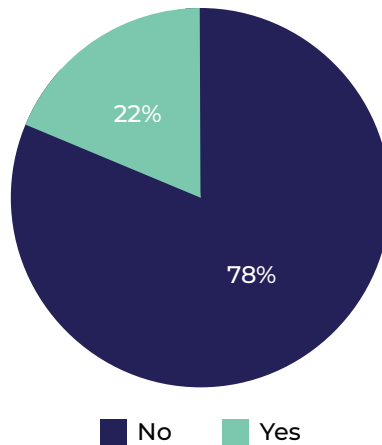
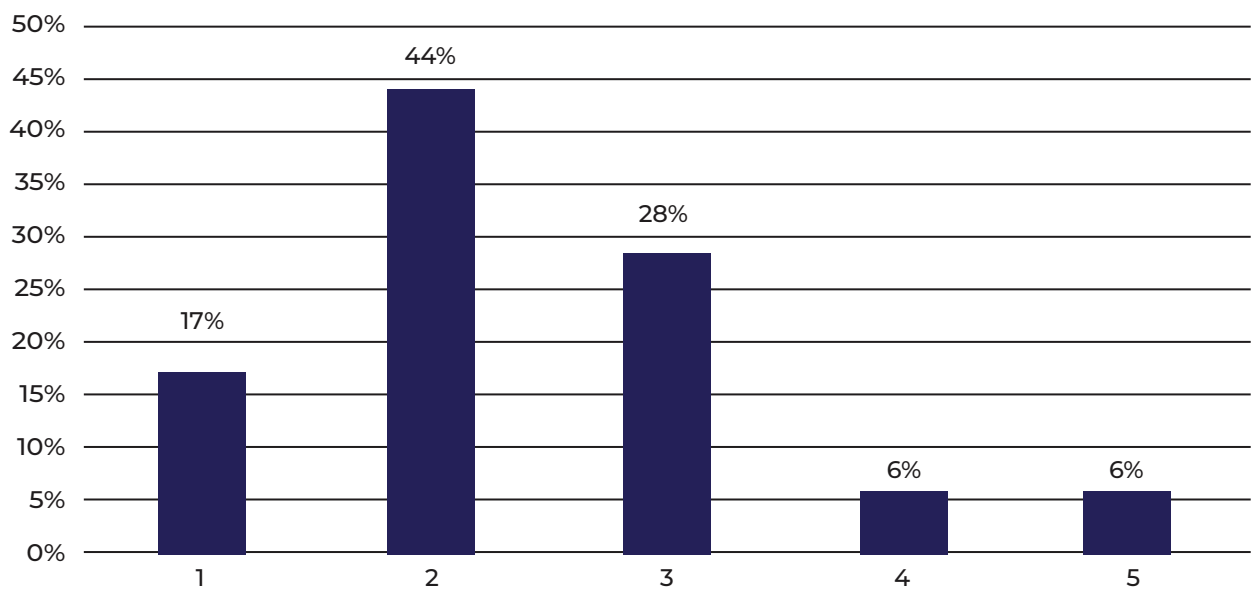


Figure 6.8.3

Most respondents (78%) did not encounter unnecessary steps or redundancies in the government licensing and registration process, while 22% did. This indicates that while the process is generally streamlined, there are still areas that could be improved for efficiency.

Supportiveness of Government Policies towards the Growth of Agri-Tech Startups



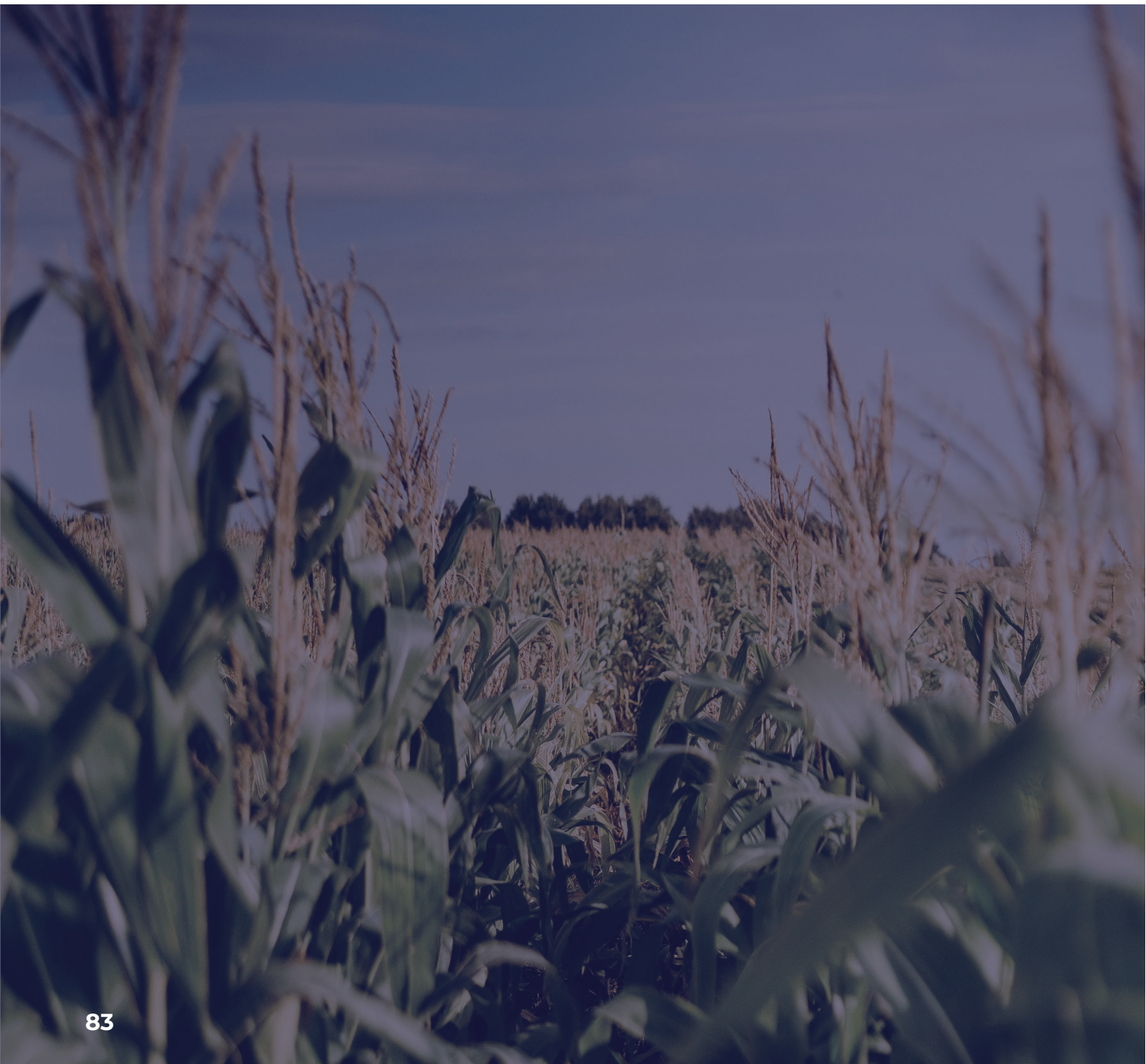
1 being the lowest and 5 being the highest

Figure 6.8.4

Current government policies towards the growth of Agri-Tech startups in Egypt are perceived as needing improvement, with an overall weighted average of 2.4. The majority of respondents rated the support low (scales 1 and 2) at 61%.

Addressing Regulatory Challenges

Several regulatory challenges hinder the development of Agri-Tech startups. Difficulty in obtaining approvals for importing hardware components, limited availability of bankable farms, high costs and complexity of farmer registration, and stringent financing regulations are significant obstacles. Uncertainty and delays in obtaining necessary permits and approvals, customs laws, and security clearances further complicate operations. The lack of specific regulations for agricultural technology companies and limited tax exemptions and financing systems also pose challenges. Additionally, regulations on drone usage and the absence of a comprehensive legal framework for agricultural development and its financing hinder innovation.



In-depth Interviews



Revolutionizing Egypt's Poultry Industry with Data-Driven Agri-Tech Solutions: PoultrySync



Neamat ElTazi

Founder

"In Egypt, the adoption of digital technologies, such as precision farming, data analytics, and machine learning, is expected to increase. These technologies will help farmers optimize their operations and resource use, leading to improved yields, reduced waste, and better management of natural resources like water—a critical concern in Egypt today."

PoultrySync focuses on optimizing the entire poultry value chain, offering advanced tools for farm management, performance monitoring, and integrating best practices from genetics companies. By combining data-driven insights and predictive analytics, the company empowers poultry producers of all sizes to enhance efficiency, sustainability, and overall growth within the Agri-Tech sector.

PoultrySync addresses critical challenges in the poultry industry that significantly impact both small and large-scale producers. One of the main issues the company tackles is the inefficiency and lack of real-time insights in poultry farm management. Many poultry producers face difficulties managing complex operations, optimizing feed and water usage, monitoring animal health, and reducing environmental waste—all of which directly affect productivity and profitability.

The comprehensive platform offered by PoultrySync uses machine learning to deliver actionable insights that help farmers make informed decisions quickly. The goal is to minimize losses due to diseases, improve feed conversion ratios, and optimize resource usage, such as water and energy. By integrating best practices from genetics companies, PoultrySync enables farmers to achieve better results. The platform helps poultry farmers manage their day-to-day activities, predict performance KPIs for better planning, and take corrective actions on time.

Securing funding has been a crucial aspect of PoultrySync's journey. One of the primary challenges the company faced was educating investors about the specific needs and opportunities within the poultry industry. Many VCs are more familiar with broader tech sectors and may not initially grasp the potential impact of innovations in agriculture. This required PoultrySync to not only pitch the business but also build a compelling narrative around the value and scalability of their solution in a niche market.

Looking at the future of Agri-Tech in Egypt, there is significant promise as the country continues to embrace innovation to address its agricultural challenges and opportunities. With a growing population and increasing demand for food, there is a pressing need to enhance agricultural productivity, efficiency, and sustainability. Agri-Tech solutions like PoultrySync are set to play a crucial role in this transformation.

In-depth Interviews



Advancing Sustainable Agriculture and Expanding Agri-Tech Innovations: Plug'n'Grow



Nourhan El Said

Plug'n'Grow, an agritech solutions provider founded in 2019, is dedicated to supporting growers in adopting profitable and sustainable agriculture practices. The company operates in Egypt and Saudi Arabia, with projects extending across the MENA region. Plug'n'Grow focuses on tackling the increasing challenges in food production, such as climate change, rising costs, and a lack of knowledge among farmers, all while addressing the growing demand for agricultural supply.

To meet these challenges, Plug'n'Grow offers innovative systems, nutrition solutions, and digital tools that are tailored specifically to the environmental and economic conditions of the region. These solutions help farmers improve their productivity and crop quality, leading to higher income and greater financial viability for their operations.

We have already achieved significant milestones, including successful expansion into multiple markets with minimal marketing efforts. One of the most notable accomplishments is our involvement in one of the largest hydroponic projects globally, located in India.

Securing funding has been a challenge, particularly due to the limited understanding among investors about the market dynamics and limitations in Egypt. However, Plug'n'Grow remains committed to overcoming these obstacles as it continues to grow.

Beyond their core team, Plug'n'Grow has contributed to the creation of at least 1,000 jobs, particularly for professional specialists across the agricultural operations cycle, including agricultural engineers, operators, and technicians.

Looking to the future, Plug'n'Grow plans to expand its offerings and its reach across the region, capitalizing on the booming Agri-Tech market in Egypt. While the market is full of amazing concepts, technologies, and potential, further support is needed to fully nourish this growth. Despite this, the growth of the Agri-Tech sector in Egypt is already becoming evident.

In-depth Interviews



Empowering Smallholder Farmers with AI-Driven Solutions and Climate Resilience: Farmtopia



Amr kamal
Co-Founder & CTO

Amr Kamal, Co-Founder and CTO of Farmtopia, brings over a decade of experience in software development, particularly in AI and IoT, to the Agri-Tech sector. In 2020, he co-founded Farmtopia, leading the creation of a digital platform that integrates AI-driven analytics, satellite imagery, and precision farming tools into a comprehensive farm management system.

Tackling Climate Vulnerability for Smallholder Farmers

Farmtopia addresses critical challenges faced by smallholder farmers, especially those in climate-vulnerable regions. These farmers often struggle with unpredictable weather patterns, water scarcity, and inefficient resource use, all of which threaten their crop yields and livelihoods. Typically, smallholder farmers lack access to advanced technologies that could help them monitor and optimize their farming practices, resulting in suboptimal decision-making, reduced productivity, and increased vulnerability to environmental changes. Farmtopia provides a solution to this problem with an affordable, all-in-one digital platform that integrates AI-driven analytics, satellite monitoring, and precision farming tools. Through data-driven insights and practical tools, the startup helps farmers adapt to climate challenges, improve yields, and enhance overall farm resilience, contributing to food security and economic stability in their communities. The platform offers a suite of innovative solutions designed to empower smallholder farmers. It integrates cutting-edge technologies, including AI-driven analytics for optimal irrigation schedules, fertilization plans, and crop health monitoring, high-resolution satellite imagery for real-time field monitoring, and precision farming tools like soil moisture monitoring and weather forecasting. Farmtopia's platform also includes farm management features like ERP, task management, and performance analysis, allowing farmers to manage their operations more efficiently. These innovations make advanced agricultural technologies affordable and accessible to smallholder farmers, transforming their approach to farming and driving sustainability across the sector.

Farmtopia's platform delivers benefits across the agricultural ecosystem, from enhancing productivity and crop quality to improving climate resilience and facilitating the digitalization of agricultural services. Agribusinesses, for instance, can use the platform to monitor productivity in contracted farming operations and track crop quality throughout the growing season. Government entities benefit from climate risk assessments that inform agricultural governance, while digital marketplaces and supply chain integration offer farmers improved access to essential inputs and market opportunities. Farmtopia also provides valuable data insights for financial institutions, enabling them to offer tailored products such as microinsurance and credit based on farm performance and resilience.

Key Milestones and Growing Impact

Since its founding, Farmtopia has achieved significant milestones, including the successful launch of its precision agriculture platform and mobile application. The platform integrates AI-driven analytics, satellite imagery, and farm management tools, making advanced agricultural technologies accessible to small and medium-sized farmers. Despite challenges in attracting investment in the Agri-Tech sector, particularly in regions like Africa and the Middle East, Farmtopia has leveraged its partnerships with Microsoft and the Agricultural Research Center in Egypt to showcase the scalability of its platform. With traction in managing over 5,000 acres and a growing user base, the startup continues to demonstrate its value proposition and long-term potential.

The Promising Future of Agri-Tech in Egypt

Looking ahead, Farmtopia is focused on generating profitability, expanding the scope of its farm management platform, and supporting digital marketplaces for essential agricultural services. The company plans to introduce multi-user functionalities to accommodate a diverse range of stakeholders and expand its operations into other African countries with similar agricultural landscapes. Strategic partnerships with technology providers, research institutions, and government bodies will be critical in driving innovation and scaling the platform's impact. The future of Agri-Tech in Egypt holds immense potential, with digitization poised to transform the agricultural sector. With more than 95% of the population using mobile phones, Egypt is well-positioned to benefit from mobile-based Agri-Tech solutions that can enhance productivity, streamline supply chains, and attract new investments. Digital tools will also modernize the industry, making it more attractive to younger generations and empowering them to pursue careers in farming and agribusiness. Platforms like Farmtopia will play a pivotal role in this transformation, offering comprehensive solutions that drive sustainability, productivity, and resilience across the agricultural sector.

In-depth Interviews

شيتوزان
إيجيبت



CHITOSAN
EGYPT

Catalyzing Agri-Tech Innovation Through Skills Development and Farmer Engagement: Chitosan



Shahira Yahia
Co-Founder & CMO

In the dynamic and rapidly evolving Agri-Tech industry, certain emerging skill sets are becoming increasingly critical, particularly in sub-sectors such as green chemistry, product development, and market intelligence. These areas are expected to play a pivotal role in driving innovation and ensuring the sustainable growth of the industry. Companies within the Agri-Tech space are placing greater emphasis on equipping their workforce with these specialized skills to stay competitive and responsive to market demands.

One of the significant challenges Agri-Tech startups face is effectively educating and incentivizing farmers to adopt new technologies. A hands-on approach, focusing on engaging farmers at the micro level, is essential. By fostering close relationships with farmers, providing them with tailored guidance, and demonstrating the tangible benefits of adopting new technologies, startups can help ease the transition towards more tech-driven agricultural practices. This approach not only empowers farmers but also enhances their productivity and sustainability in the long term.

Creating new job opportunities in rural communities is another area where Agri-Tech startups can make a substantial impact. It is already common practice to employ locals in these regions, as agronomists are predominantly rural-based, often born into agriculture themselves. However, what is often lacking is the caliber of these agronomists in fulfilling critical roles such as research and development, sales, marketing, account management, and, surprisingly, even technical support. Addressing this skills gap through targeted training and capacity-building initiatives can unlock new opportunities and elevate the level of expertise in rural communities, benefiting both the industry and the local workforce.

On the policy front, fostering a more favorable environment for Agri-Tech innovation requires addressing several pressing issues. One of the key areas needing attention is the regulation and application of stringent organic policies. These policies must be streamlined and more effectively enforced to support the growth of the organic farming sector, which is a critical component of the broader sustainable agriculture movement. While the list of necessary policy changes is extensive, starting with organic policy reforms could pave the way for further advancements in the sector.

Section 7:
**Future of the Egyptian
Agri-Tech Trajectory**

Solutions for A Brighter Future

Unlocking the full potential of Egypt's agribusiness sector requires a multi-pronged approach:



Transparency in Pricing: Increased transparency in government pricing decisions would empower agribusinesses to make informed investment decisions, fostering a more competitive market environment.



Revitalizing the MALR Extension Services and Implementing Stricter Quality Control Measures: Investing in and bolstering the MALR extension services would equip farmers with the necessary knowledge and best practices, leading to increased yields, improved product quality, and more sustainable agricultural practices. As well as Implementing stricter quality control measures and promoting the adoption of certified inputs can significantly enhance agricultural productivity.



Streamlined Financing: Facilitating access to capital and simplifying documentation processes would encourage entrepreneurship and innovation within the sector. Government-backed loan guarantees, microfinance initiatives, and collaboration with private banks could play a key role in providing the necessary financial support.



Promoting Sustainable Practices: Educational campaigns and financial incentives can encourage the adoption of certified seeds, proper irrigation techniques such as drip irrigation, and hygienic post-harvest handling methods. This not only improves product quality but also conserves water resources and reduces environmental impact. As well as encouraging investment in training programs to cultivate a skilled workforce



Empowering Farmers: Initiatives that improve market access for farmers, such as providing them with real-time market information and support for establishing direct marketing channels, would grant them greater autonomy and bargaining power. Additionally, training programs on negotiation skills and contract management can further empower farmers to navigate the complexities of the market.



Collaborative Business Models: Fostering the development of cooperative models and contract farming arrangements would create a more equitable and stable market environment for all stakeholders. Contract farming partnerships can provide farmers with guaranteed markets, technical assistance, and access to financing, while agribusinesses benefit from a secure supply of high-quality produce.



Establishment of Processing Zones within Agricultural Areas: A re-evaluation of regulations restricting the establishment of industrial facilities in agricultural land, potentially allowing for designated processing zones within agricultural areas, could streamline the supply chain and mitigate the risks of high transportation costs, spoilage, and contamination of fresh produce.



Post-Harvest Infrastructure Development: The development of improved infrastructure, specifically tailored to the needs of different and delicate crops, can significantly reduce these losses and enhance the overall value chain.



Labor Market Strategies and Workforce Management: Developing strategies to connect farmers with a consistent and skilled workforce, potentially through partnerships with employment agencies, can ensure operational stability. Additionally, the provision of a system for registering and certifying informal laborers could provide informal laborers with some basic protections and benefits, fostering a more stable and skilled workforce.



Innovation and Technology Transfer: fostering public-private partnerships can facilitate the development and dissemination of affordable and accessible technologies tailored to the specific needs of small-scale Egyptian farmers. The government should also expand on offering subsidies and grants that can help farmers overcome the initial cost barrier of new technologies.



To create a more favorable environment for Agri-Tech innovation, several policy changes are recommended:

1. Implementing centralized government support for farming and encouraging sponsorship from the Ministry of Agriculture and Land Reclamation can provide much-needed resources.
2. Simplifying the certification processes for Agri-Tech products and offering easier access to finance, along with government rebates for high-tech systems, can boost adoption.
3. Easier access to sensors and positioning systems is crucial.
4. Promoting angel investor networks and offering tax breaks for research and development can stimulate investment.
5. Expanding high-speed internet access in rural areas and integrating Agri-Tech training into educational programs can enhance infrastructure and capacity building.
6. Fostering public-private partnerships to address agricultural challenges through joint research and development projects can accelerate innovation.
7. Simplifying export procedures and supporting participation in international trade shows can improve market access.
8. Prioritizing Agri-Tech solutions in government procurement programs can promote domestic innovation.

The future outlook for the Agri-Tech sector in Egypt is optimistic, driven by ongoing technological advancements, supportive government policies, and increasing recognition of the sector's critical role in ensuring food security and economic stability. However, there are notable challenges related to funding and venture capital management that need to be addressed to fully realize the sector's potential.



Technological Advancements

The integration of advanced technologies, such as precision agriculture, Internet of Things (IoT), and artificial intelligence (AI), is expected to continue transforming the agricultural landscape in Egypt. These technologies will enable more efficient resource management, improved crop monitoring, and enhanced productivity. Innovations in biotechnology, including genetically modified organisms (GMOs), will contribute to higher yields and better resilience against climate change.



Digital Integration and ICT Development

With significant progress in the ICT sector, including widespread mobile and internet penetration, there is considerable potential for digital solutions in agriculture. Mobile-based applications and platforms for farm management, market information, and financial services will empower farmers with real-time data and better market access. These digital tools are likely to streamline operations, reduce costs, and increase profitability for farmers across Egypt.



Government Initiatives and Policy Support

The Egyptian government has been actively supporting the Agri-Tech sector through various initiatives and policies. Strategic plans, such as the Sustainable Agricultural Development Strategy 2030, aim to modernize the sector and improve efficiency. Investment in modern irrigation projects, land reclamation, and infrastructure development are expected to continue, enhancing agricultural productivity. Additionally, policies such as the Contract Farming Law and the Agricultural Solidarity Fund provide a supportive framework for growth and investment in Agri-Tech.



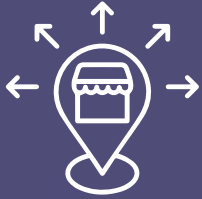
Investment and International Collaboration

Increased domestic and international investments in Agri-Tech will drive further development and adoption of innovative technologies. Collaborations with international organizations and development partners will facilitate knowledge transfer, capacity building, and the introduction of advanced agricultural practices. These partnerships will play a crucial role in scaling up successful Agri-Tech initiatives and expanding their impact across the sector.



Sustainability and Climate Resilience

Addressing the challenges of water scarcity and climate change is paramount for the future of agriculture in Egypt. Sustainable practices, such as efficient water management, conservation agriculture, and the use of renewable energy sources, will be essential. The adoption of climate-resilient crop varieties and advanced irrigation techniques will help mitigate the impacts of climate change and ensure the long-term sustainability of agricultural production.



Market Expansion and Export Opportunities

The Agri-Tech sector is poised to tap into new market opportunities both domestically and internationally. The focus on high-value crops, organic farming, and specialty products will open new avenues for export. Improved logistics and supply chain infrastructure will enhance the ability of Egyptian agricultural products to compete in global markets, contributing to increased foreign exchange earnings and economic growth.



Funding and Venture Capital Challenges

Despite the growing interest from venture capitalists and other funding sources, startups in the Agri-Tech sector in Egypt face significant challenges in managing funding and attracting sufficient investment. Many startups struggle with the complexities of securing venture capital and efficiently managing the funds they receive. These challenges are often due to a lack of experience in financial management, insufficient mentorship and support networks, and a relatively nascent investment ecosystem for Agri-Tech innovations. Addressing these issues will require targeted efforts to provide startups with better access to financial management training, mentorship programs, and a more robust support infrastructure to navigate the venture capital landscape successfully.



Job Creation

Agri-Tech is expected to generate substantial job opportunities, both directly and indirectly. Direct job creation will stem from the establishment of new startups and the expansion of existing ones. These jobs will encompass a range of roles, from technological development and engineering to on-the-ground agricultural operations and management. Indirect job creation will arise from the broader impact on the agricultural value chain, including logistics, marketing, and support services. Optimism about job creation is high, with many stakeholders anticipating significant employment opportunities within the next 3-5 years.

In conclusion, the future of the Agri-Tech sector in Egypt is promising, with significant potential for growth and transformation. By leveraging technological advancements, fostering a supportive policy environment, attracting investments, and promoting sustainable practices, Egypt can enhance its agricultural productivity, ensure food security, and achieve long-term economic development. The ongoing efforts to integrate digital solutions, attract venture capital, and strengthen international collaborations will be key to realizing this potential and positioning Egypt as a leader in Agri-Tech innovation. However, it is essential to address the challenges related to funding and venture capital management to ensure that startups can thrive and contribute effectively to the sector's growth.

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