Smart Greenhouse Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 148 pages | Mordor Intelligence

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Report description:

The Smart Greenhouse market (hereafter referred to as the market studied) was valued at USD 1,607.87 million in 2021, and it is expected to reach USD 2,922.75 million by 2027, registering a CAGR of 10.23% during the period 2022-2027 (hereafter referred to as the forecast period).

Key Highlights
In the current era, agriculture growth is considered one of the core components that can directly influence a country's economic growth as it provides revenue through the production of food and raw materials, which thereby counts as a primary source for imports and exports. It additionally generates employment opportunities on a larger scale. It helps countries leverage their economy transformation from a convention to an advanced economy, hence fostering the market's growth.
Smart greenhouses, equipped with current sensors and communications technology, automatically record and disseminate information on the environment and crop 24/7. Data is collected and supplied into an IoT platform, where analytical algorithms turn it into actionable insight to identify bottlenecks and irregularities. As a result, HVAC and lighting operations and irrigation and spraying operations may all be controlled on demand. The creation of predictive models to estimate crop disease and infection risks is aided by continuous data monitoring.
Farmers can collect various data points in unprecedented detail using IoT sensors. They provide real-time data on critical climate factors such as temperature, humidity, light exposure, and carbon dioxide throughout the greenhouse. This information leads to appropriate changes to HVAC and lighting settings to maintain the ideal conditions for plant development while also increasing the energy economy. Simultaneously, motion/acceleration sensors help detect doors left open unintentionally, ensuring a tightly controlled environment.
HVAC, material logistics, sensors, and LED grow lights are all part of a smart greenhouse's technology. Because different companies supply distinct features for a regulated environment, integrating all technology in greenhouses is difficult. As a result,

to create a smart greenhouse, companies must collaborate and provide a regulated environment to produce optimal yields. This is a significant challenge for the smart greenhouse market's expansion.
The smart greenhouse market has suffered in terms of production, distribution, and uncertainty in demand due to the global COVID-19 pandemic. COVID-19-related restrictions on exports and imports have resulted in supply chain disruptions and vendors aiming to promote smart farm exports. For instance, in December 2021, in the Middle East, South Korea was building a smart farm with technology that allows it to grow various crops while using the least amount of water possible. The government aims to promote smart farm exports to the region based on technology and price competitiveness.

Smart Greenhouse Market Trends

Increasing Adoption of IoT and AI by Farmers and Agriculturists

Smart greenhouses, equipped with current sensors and communications technology, automatically record and disseminate information on the environment and crop 24/7. Data is collected and supplied into an IoT platform, where analytical algorithms turn it into actionable insight to identify bottlenecks and irregularities. As a result, HVAC and lighting operations and irrigation and spraying operations may all be controlled on demand. The creation of predictive models to estimate crop disease and infection risks is aided by continuous data monitoring.
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Greenhouses with high-value crops are a viable target for hackers. Many farmers do not have an efficient security system since standard surveillance networks with CCTVs are costly to establish. IoT sensors in smart greenhouses provide a cost-effective infrastructure for monitoring door status and detecting suspicious activity in this context. They can immediately alert farmers if a security risk emerges when linked to an automatic alarm system.
In November 2021, the Department of Science and Technology (DOST) announced investing PHP 2.49 million to build a smart greenhouse system at the Payatas Controlled Disposal Facility (PCDF). To implement this project, the DOST-National Capital Region signed a memorandum of understanding with the Technological University of the Philippines. The project aims to create a smart greenhouse system by incorporating new technologies into various components, such as a smart aquaponics system using the Internet of Things (IoT), which will create an IoT-based integrated sensor module for monitoring smart aquaponics system parameters.
The market is witnessed with AI investments. In September 2021, MetoMotion, a company that creates advanced, intelligent robotic systems to assist farmers with farm operations, raised USD 5 million in funding. Ridder, a renowned greenhouse technology business, and Lely's family investment office, Navus Ventures, sponsored the financing. In the round, Sirius VC also took part. The GRoW robot from MetoMotion brings advanced technology into the greenhouse, utilizing the latest AI-based computers for 3D perception. The robot's distinctive shape matches the current greenhouse environment due to specially built, flexible motion control and path-planning algorithms.
Therefore, all the factors mentioned above are expected to affect the demand for the adoption of IoT and AI by farmers and agriculturists over the forecast period.

Asia-Pacific to Witness Significant Growth in the Market

The agriculture sector has remained the backbone of the Indian economy for a long time as it employs about 60% of the country's workforce.
Sensing the big market of the farming-based country, India also gains huge profits while exporting large amounts of food products across the globe. According to government data, India's exports of Agricultural and Processed Food products increased by more than 13% in terms of USD from April-November for the fiscal year 2021-22, compared to the previous year's period.
However, the agriculture sector in India is still primarily climate-based, with limited technology penetration. The rising population and changing diets have created huge pressure on land in India. Farmers struggle to keep up as soil degradation rises, crop yields level off, water shortage increases, natural calamity becomes more frequent, and biodiversity declines.
China was the most populous country in the world, with a population exceeding 1.4 billion as of 2021. The agriculture sector has long been among the central pillars of the country's economy. In addition to serving the local population, the agriculture sector in China also serves various international markets.
It is considering the importance of the agricultural sector in its vision of becoming a self-reliant country. The Chinese government has been pushing for the modernization of the agricultural sector for decades now. This is evident from the fact that, for consecutive years, the CPC Central Committee and State Council have made agriculture the focus of the annual Number One Central Document.
The agriculture sector in Japan contributes about 1% to the country's GDP (1.007% in 2019, according to the World Bank), as a significant portion of the country's food requirements is met by imports. The primary factors behind this are scarcity of farmland and unfavorable climate conditions. The number of people engaged in farming has also fallen significantly.
The rest of Asia-Pacific includes Australia & New Zealand, Thailand, Singapore, Malaysia, and Indonesia.
The agricultural sector in Australia is a significant contributor to the country's economy. According to the Australian government, Australian agriculture accounts for 55% of land use and 24% of water extractions. In the financial year 2020-21, the sector accounted for 12% of goods and services exports and added 1.9% value to the GDP.

Smart Greenhouse Market Competitor Analysis

The smart greenhouse market is fragmented, and various companies compete on a regional scale to gain market share. Vendors in the market are expected to compete intensely for large-scale projects, but smaller vendors are expected to hold prominence over the market in the local space.? Major vendors that offer integrated products are expected to command a higher share of the adoption of their solutions due to the spread of their presence over the value chain and the ability to mitigate the risk.

July 2021- MineARC Systems, a manufacturer and supplier of controlled environments for biotechnology and agriculture applications, established a reseller partnership with Heliospectra. The company would represent Heliospectra's market-leading LED lighting and light control systems for controlled environment agriculture in the Australian market.
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May 2021 - Heliospectra partnered with Harahara Inc. to roll out its LED lightning and light control solutions for controlled environment agriculture and PEALs in Japan.

Additional Benefits:

The market estimate (ME) sheet in Excel format
3 months of analyst support

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