

Smart Greenhouse - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029

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Report description:

The Smart Greenhouse Market size is estimated at USD 2.36 billion in 2024, and is expected to reach USD 3.82 billion by 2029, growing at a CAGR of 10.15% during the forecast period (2024-2029).

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 economic 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

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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 environmental and crop information 24/7. Data is collected and supplied to an IoT platform, where analytical algorithms turn it into actionable insight to identify bottlenecks and irregularities.
- As a result, HVAC and lighting operations, 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.
- Moreover, the increasing adoption of advanced technologies such as IoT and AI is fostering market growth potential. For instance, according to the data from IDATE DigiWorld and ETNO, the number of Internet of Things (IoT) active connections in agriculture in the European Union (EU) is reported to have increased from 0.51 million in 2016 to 70.26 million by 2025.
- 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 ideal plant development conditions while increasing the energy economy. Simultaneously, motion and acceleration sensors help detect doors left open unintentionally, ensuring a tightly controlled environment.
- Greenhouses with high-value crops are a viable target for hackers. Many farmers need 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.

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 USD from April to 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 shortages increase, natural calamities become more frequent, and biodiversity declines.
- These combined factors drive the demand for modern farming techniques to cater to the ever-increasing demand for agricultural products. Greenhouses have emerged as highly beneficial gardening solutions, especially in extreme weather conditions, as they offer a controlled environment that guarantees higher yields sustainably.
- Similarly, other APAC countries such as India, Japan, and Australia also support smart greenhouse market growth in the region.

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For instance, in China, smart greenhouses epitomize the development of smart agriculture. This technique, combined with the latest technology, enables Chinese farmers to monitor the conditions of the soil in real-time and achieve warning and control, as well as efficient pest monitoring, using smart systems backed up by big data.

- Further, according to the New South Wales government, agricultural technology, or Agtech, is predicted to become Australia's next USD 100 billion industry by 2030. Factors such as global warming, diminishing natural resources, rising labor costs, energy, fertilizer, herbicides, and seeds have allowed Agtech to grow.

- Such trends drive the demand for smart greenhouses in the country, leading to a growing emphasis on R&D to develop innovative solutions. For instance, in early 2022, Australian agri-tech start-up Farm 4.0 announced a collaboration with Korea-based company Green Plus to develop a strawberry greenhouse on more than 4 hectares in Toowoomba, Australia.

Smart Greenhouse Industry Overview

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.

In August 2022, Signify Korea installed a Philips horticulture LED grow light solution at the 2.8 ha Parm Farm Greenhouse for tomato production in Nonsan, Chungcheongnam-do, Korea. Parm Farm installed Philips GreenPower toplighting compact to produce higher yields, accelerate plant growth, and enable higher-quality crop production.

In January 2022, BFG Supply overtook International Greenhouse Co. Greenhouse Megastore, a distributor of commercial and hobby greenhouse structures and related products. The acquisition of GMS will expand BFG's greenhouse capabilities and product selection, further improving customer service levels in the horticulture market.

Additional Benefits:

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

Table of Contents:

1 INTRODUCTION

1.1 Study Assumptions and Market Definition

1.2 Scope of the Study

2 RESEARCH METHODOLOGY

3 EXECUTIVE SUMMARY

4 MARKET INSIGHTS

4.1 Market Overview

4.2 Industry Value Chain Analysis

4.3 Industry Attractiveness - Porter's Five Forces Analysis

4.3.1 Bargaining Power of Suppliers

4.3.2 Bargaining Power of Buyers

4.3.3 Threat of New Entrants

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- 4.3.4 Threat of Substitutes
- 4.3.5 Intensity of Competitive Rivalry
- 4.4 Assessment of COVID-19 Impact on the Industry

5 MARKET DYNAMICS

5.1 Market Drivers

- 5.1.1 Increasing Adoption of IoT and AI by Farmers and Agriculturists
- 5.1.2 Growing Demand for Food due to Continuously Increasing Global Population

5.2 Market Challenges

- 5.2.1 High Investment Costs due to the Deployment of Expensive Systems in Smart Greenhouses

6 MARKET SEGMENTATION

6.1 By Type

- 6.1.1 Hydroponic
- 6.1.2 Non-hydroponic

6.2 By Technology

- 6.2.1 LED Grow Light
- 6.2.2 HVAC
- 6.2.3 Material Handling
- 6.2.4 Control Systems
- 6.2.5 Sensors and Cameras
- 6.2.6 Valves and Pumps
- 6.2.7 Irrigation Systems

6.3 By Geography

- 6.3.1 North America
 - 6.3.1.1 United States
 - 6.3.1.2 Canada
- 6.3.2 Europe
 - 6.3.2.1 Germany
 - 6.3.2.2 United Kingdom
 - 6.3.2.3 France
 - 6.3.2.4 Rest of Europe
- 6.3.3 Asia-Pacific
 - 6.3.3.1 India
 - 6.3.3.2 China
 - 6.3.3.3 Japan
 - 6.3.3.4 Rest of Asia-Pacific
- 6.3.4 Latin America
- 6.3.5 Middle East and Africa

7 COMPETITIVE LANDSCAPE

7.1 Company Profiles

- 7.1.1 Heliospectra AB
- 7.1.2 Rough Brothers Inc. (Gibraltar Industries INC.)
- 7.1.3 Lumigrow Inc.
- 7.1.4 Certhon
- 7.1.5 GreenTech Agro LLC

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- 7.1.6 Argus Control System Ltd
- 7.1.7 Logigs
- 7.1.8 Greenhouse Megastore (BFG Supply)
- 7.1.9 Netafim
- 7.1.10 Desert Growing
- 7.1.11 Sensaphone
- 7.1.12 CarbonBook (Motorleaf)

8 MARKET OPPORTUNITIES AND FUTURE TRENDS

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