

Vertical Farming Market by Growth Mechanism (Hydroponics, Aeroponics, Aquaponics), Structure (Building-based and Shipping container-based), Crop Type, Offering (Lighting, Sensors, Climate Control, Software, Services) & Region - Global Forecast to 2028

<https://marketpublishers.com/r/VB2FF9428FCEN.html>

Date: June 2023

Pages: 218

Price: US\$ 4,950.00 (Single User License)

ID: VB2FF9428FCEN

Abstracts

The vertical farming market is estimated to be USD 5.1 billion in 2023, and it is expected to reach USD 15.3 billion by 2028; growing at a CAGR of 24.7% from 2023 to 2028. The vertical farming market is set to experience remarkable growth in the coming years. One of the driving factors behind this growth is the escalating demand for fresh, locally produced food. As consumers become more conscious of the origin and quality of their food, the desire for farm-to-table options continues to surge. Vertical farming presents an innovative and sustainable solution to meet this demand.

Hardware segment to account largest market share between 2023 and 2028

Based on offering, hardware segment is likely to dominate vertical farming market throughout the forecast period. Hardware component such as LED lighting, sensors, and climate control offer notable advantages in vertical farming. LED lighting surpasses traditional options in terms of energy efficiency, resulting in reduced operating costs and lower heat production, which is particularly beneficial in vertical farms. Sensors play a crucial role in monitoring various factors like temperature, humidity, light levels, and nutrient levels, enabling optimal growing conditions for plants. This optimized environment can lead to higher crop yields and improved quality. Additionally, climate control systems ensure a consistent and tailored environment for plant growth, which is vital for their overall well-being. Furthermore, these systems help in safeguarding

vertical farms from pests and diseases, thereby ensuring a healthy and productive cultivation environment. The incorporation of LED lighting, sensors, and climate control hardware devices in vertical farming significantly enhances efficiency, productivity, and plant health.

Aquaponics growth mechanism Segment to offer lucrative growth during forecast period

The growth potential for aquaponics in vertical farming is substantial due to several factors. Aquaponics involves the symbiotic cultivation of plants and fish in a closed system, where fish waste provides nutrients for the plants, and the plants filter the water for the fish. This technique offers significant advantages for the vertical farming industry. One key advantage is water conservation. Aquaponics is highly efficient in its water usage, consuming up to 90% less water compared to traditional farming methods. The water is continuously recycled and reused within the system, minimizing waste and promoting sustainability. Furthermore, aquaponics demonstrates high productivity, generating substantial yields of food in a compact area. The integrated system optimizes the use of resources such as water and nutrients, leading to efficient growth and harvest.

Lettuce is among most cultivated crops across different vertical farms

Lettuce holds a significant share in vertical farms for several reasons, making it one of the most cultivated crops in this farming method compared to others. Lettuce is a leafy green vegetable that has a relatively short growth cycle and doesn't require excessive vertical space. This makes it well-suited for vertical farming systems, where crops are grown in stacked layers or vertical towers. Lettuce's compact size allows for efficient use of the available vertical space, maximizing the yield per square meter. Further, lettuce has a high demand in the market, particularly in urban areas where vertical farms are commonly located. It is a staple ingredient in salads, sandwiches, and wraps, making it a popular choice for health-conscious consumers seeking fresh, locally-grown produce. The proximity of vertical farms to urban centers allows for quicker delivery and access to consumers, ensuring the lettuce reaches its market in a fresher state compared to long-distance transportation from traditional farms.

North America likely to dominate vertical farming market during the forecast period

The vertical farming market in the North America is experiencing dominance due to several factors. Firstly, the region's large and expanding population has created a high demand for fresh and locally sourced produce. Vertical farming addresses this demand

by enabling year-round cultivation, independent of weather conditions. Additionally, the Americas boast a robust economy and access to substantial venture capital, which fuels the growth of the vertical farming industry. This financial support provides resources for infrastructure development and technological advancements. Moreover, certain governments in the North America are actively supporting the vertical farming sector by offering financial incentives and regulatory assistance. This governmental backing creates a conducive environment for industry growth and innovation.

In the process of determining and verifying the market size for several segments and subsegments gathered through secondary research, extensive primary interviews have been conducted with key officials in the vertical farming market. Following is the breakup of the profiles of primary participants for the report.

By Company Type: Tier 1 – 40 %, Tier 2 – 45%, and Tier 3 – 15%

By Designation: C-Level Executives – 40%, Directors – 30%, and Others – 30%

By Region: North America – 20%, APAC – 35%, Europe – 30%, and RoW – 15%

The report profiles key players in the vertical farming market and analyzes their market shares. Players profiled in this report are Signify (Netherlands), Osram (Germany), Freight Farms (US), AeroFarms (US), sky Greens (Singapore), Spread (Japan), Plenty (US), Valoya (Finland), Everlight Electronics (Taiwan), Heliospectra AB (Sweden), Green Sense Farms (US), Agrilution (Germany), American Hydroponics (US), Urban Crop solutions (Belgium), Vertical Farm Systems (Australia), bowery Farming (US), Agricool (France), Sananbio (US), Growpod Solutions (US), Infarm (Germany), Altius Farms (US), Intelligent Growth Solutions (Scotland), 4D BIOS INC (US), Future Crops (Netherlands), Bright Farms (US), Swegreen (Sweden), and Vertical Future Ltd (UK).

Research Coverage

This report segments the vertical farming market based on structure, growth mechanisms, offerings, crop types, and regions. It also describes major drivers, restraints, challenges, and opportunities about this market, as well as includes market share analysis, value chain analysis, porter's five forces analysis, trade analysis, ecosystem, technological trends, pricing analysis, key patents, standards and frameworks, and case studies/use cases.

Reasons to Buy This Report

1. Analysis of key drivers (High yield associated with vertical farming over conventional farming, Advancements in light-emitting diode (LED) technology, Year-round crop production irrespective of weather conditions, Requirement of minimum resources, Limited availability of arable land), restraints (Lack of technically skilled workforce and limited crop types, High start-up costs), opportunities (Reduced environmental impact from agriculture by adoption of vertical farming, Potential market opportunities in Asia Pacific and Middle East, Cannabis cultivation through vertical farming), and challenges (Maintenance of temperature, humidity, and air circulation in a vertical farm, Higher energy consumption leading to high operational costs, Vertical farming on a large scale) influencing the growth of the vertical farming market.
2. Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and new product & service launches in the vertical farming market
3. Market Development: Comprehensive information about lucrative markets – the report analyses the vertical farming market across varied regions
4. Market Diversification: Exhaustive information about new products & services, untapped geographies, recent developments, and investments in the vertical farming market
5. Competitive Assessment: In-depth assessment of market shares, growth strategies and service offerings of leading players like Signify Holding (Netherlands), ams-OSRAM AG (Germany), Freight Farms, Inc. (US), AeroFarms (US), Sky Greens (Singapore), Spread Co., Ltd. (Japan), Plenty Unlimited Inc. (US), Valoya (Finland), EVERLIGHT ELECTRONICS CO., LTD. (Taiwan), and Heliospectra (Sweden) among others in the vertical farming market strategies.

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*Details on Business Overview, Products/Solutions/Services Offered, Recent Developments, and MnM View (Key strengths/Right to Win, Strategic Choices Made, and Weaknesses and Competitive Threats) might not be captured in case of unlisted companies.

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