Horticulture Lighting Market by Installation type (New Installations, Retrofit Installations), Lighting Type (Toplighting, Interlighting), Offering (Hardware, Software & Service), Cultivation Type, Technology, Application, Region - Global Forecast to 2028

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Report description:

The horticulture lighting market is expected to reach USD 10.4 billion by 2028 from USD 3.7 billion in 2023, at a CAGR of 22.4% during the 2023-2028 period. Horticulture lighting technology has the ability to offer customizable light spectra, tailored to meet the specific requirements of diverse plant species and various growth stages. This level of precision and customization has transformed the way plants are cultivated, as it allows growers to create an ideal light environment for each crop, leading to optimized plant growth and faster maturation processes. In traditional farming methods, plants rely solely on natural sunlight, which may not always provide the ideal spectrum of light for optimal growth. Horticulture lighting addresses this limitation by utilizing light-emitting diodes (LEDs) that can produce light across a wide range of wavelengths. This flexibility allows growers to select and fine-tune the light spectrum best suited to the specific needs of their crops.

Different plant species have varying light requirements, and even within a single plant's life cycle, their lighting needs can change. For instance, young seedlings may require more blue light to promote strong root and shoot development, while mature plants may benefit from an increased amount of red light to support flowering and fruiting. With customizable light spectra, horticulture lighting systems can be adjusted to provide the appropriate light ratios for each growth stage, ensuring plants receive the exact wavelengths they need at each developmental phase.

By fine-tuning the light spectra, horticulture lighting promotes photosynthesis, the process by which plants convert light into energy for growth. Providing the right combination of colors ensures that photosynthesis occurs at its maximum efficiency, leading to improved biomass production and healthier, more vigorous plants. Moreover, with the ability to manipulate light spectra, growers can influence various plant characteristics, such as flavor, color, and nutritional content. For example, specific

light spectra can enhance the production of certain compounds, like antioxidants or essential oils, which contribute to the taste and nutritional value of fruits, vegetables, and herbs.
The application of customizable light spectra is particularly valuable in indoor farming and controlled environment agriculture settings, where natural sunlight may be limited or inconsistent. By precisely tailoring the light conditions to match the exact requirements of the crops being cultivated, horticulture lighting ensures a consistent and predictable growth environment, resulting in better yields and crop quality.
LED is expected to grow at the highest CAGR during the forecast period
Solid-state light sources like LEDs and OLEDs are modern lighting solutions, with LEDs often referred to as the fourth generation of artificial lighting. LEDs are semiconductors converting electricity to light through electron movement. Equipped with heat sinks and fans, LED grow lights emit minimal heat, allowing close placement to plants. They provide optimal light for plant growth, aiding photosynthesis and offering control over plant morphology through spectrum adjustments.
Advanced LED grow lights offer adjustable spectra, suited to plant growth stages. They surpass traditional lighting in efficiency, with up to 60% electro-optical conversion efficiency, outperforming HPS and fluorescent lamps. LED longevity is nearly 50,000 hours, consuming 50% less energy than fluorescent and 85% less than incandescent lights. Resistant to shocks and moisture, LEDs suit controlled environment agriculture (CEA) settings. Their efficiency, durability, and environmental compatibility make them a key choice in greenhouses and indoor farms.
Driven by eco-friendly goals, governments worldwide endorse LEDs for indoor plant growth, promoting solid-state lighting (SSL) technology. This boosts LED adoption in CEA facilities and enhances their potential in horticultural lighting. Ongoing research and development strive to make SSL systems more affordable.
Many companies have introduced LED, horticulture lighting products such as in December 2022, Signify Holding (Phillips Lighting) introduces 1,040-watt Philips HPS light fixture for a low-maintenance, hybrid light installation in combination with Philips GreenPower LED toplighting. And in March 2022, Signify Holding (Phillips Lighting) introduces Philips GreenPower LED gridlighting to steer uniform bud development and increase yield of top-shelf flowers. It provides optimal light intensity during each growth phase with rotary dimming.

Greenhouses in horticulture lighting application segment is expected to have the heightest market share in the forecast period.

Greenhouses serve as sheltered environments to optimize crop growth and yield. They transcend geographic and climatic constraints, ensuring consistent conditions year-round. These structures harness natural sunlight and humidity to nurture a variety of plants, either soil-based or through hydroponics. Greenhouses offer water efficiency, uniform light distribution via LED grow lights, and controlled temperature and humidity. Smart greenhouses, enabled by sensors and automation, revolutionize agriculture. They tailor microclimates for plants. Hydroponic and non-hydroponic setups define greenhouse categories. Smart greenhouses, including LED technology, enhance crop production efficiency. Europe's shift away from older technologies boosts LED horticulture lighting.
Supplemental horticulture lights address limited daylight, propelling yield growth. LED lights outshine metal halide and high-pressure sodium lamps. Gotham Greens and OSRAM exemplify innovative greenhouse solutions. Automation reduces labor dependency and drives production efficiency.
Almeria, Spain, underscores greenhouse economic significance. The province dominates Spain's horticultural greenhouse landscape. Notably, AppHarvest secured $91 million to support its Kentucky facility, emphasizing sustainability. Agroinvest in Russia, with a vast greenhouse complex, contributes to local vegetable self-sufficiency. In 2021, AppHarvest secured USD 91 million from Equlibrium Capital for its Kentucky facility. Agroinvest in Russia operates a substantial greenhouse complex, aiding regional vegetable self-sufficiency.
During the forecast period, the Asia Pacific region is expected to grow at the highest CAGR.
In 2022, Asia Pacific held a ~ 26% share of the horticulture lighting market. This market segment includes China, Japan, Southeast Asia, Australia, and the Rest of Asia Pacific. Anticipated growth for Asia Pacific's horticulture lighting market is marked by a 26.4% CAGR from 2023 to 2028. This trajectory is driven by the region's burgeoning population, escalating food demand, and the

adoption of advanced farming methods like Controlled Environment Agriculture (CEA) for year-round fresh produce. The pressure to enhance agricultural yields with limited resources and safeguard crops against unpredictable climate changes also bolsters horticulture lighting adoption in Asia Pacific.
In July 2021, Heliospectra AB, a world leader in intelligent lighting technology for vertical farming, announced a new seller partnership with MineARC Systems, a global leader in manufacturing and supplying controlled environments. The company will represent Heliospectra's market-leading LED lighting and lighting control solutions in the Australian market.

The break-up of the profile of primary participants in the horticulture lighting market-
-By Company Type: Tier 1 - 35%, Tier 2 - 45%, Tier 3 - 20%
-By Designation Type: C Level - 40%, Director Level - 35%, Others - 25%
-By Region Type: North America- 40%, Asia Pacific - 30%, Europe - 20%, RoW - 10%,

The major players in the horticulture lighting market with a significant global presence include Signify Holding (Phillips Lighting) (Netherlands), Gavita International B.V.(Netherlands), Heliospectra(Sweden), ams-OSRAM International GmbH(Austria), California LightWorks(US), Valoya (Finland), Hortilux Schreder(Netherlands), ILUMINAR Lighting(US), Current Lighting Solutions, LLC.(US), GE Lighting (SAVANT TECHNOLOGIES LLC.)(US), ACUITY BRANDS, INC.(US), Lumileds Holding B.V.(Netherlands), Cree LED an SGH company(US), TCP Lighting(US), PARsource(US), EconoLux Industries Ltd.(China), Oreon (Netherlands), GlacialLight - Division of GlacialTech Inc.(Taiwan), Black Dog Horticulture Technologies & Consulting(US), ViparSpectra(US), Active Grow(US), Agnetix(US), Thrive Agritech(US), Bridgelux, Inc.(US), and Kroptek(UK).

Research Coverage
The report segments the horticulture lighting market and forecasts its size based and region. The report also provides a comprehensive review of drivers, restraints, opportunities, and challenges influencing market growth. The report also covers qualitative aspects in addition to the quantitative aspects of the market.
Reasons to buy the report:
The report will help the market leaders/new entrants in this market with information on the closest approximate revenues for the overall horticulture lighting market and related segments. This report will help stakeholders understand the competitive landscape and gain more insights to strengthen their position in the market and plan suitable go-to-market strategies. The report also helps stakeholders understand the pulse of the market and provides them with information on key market drivers, restraints, opportunities, and challenges.

The report provides insights on the following pointers:
-Analysis of key drivers (Controlled environment agriculture (CEA) practices and the adoption of SSL technology receive robust backing from governments), restraints (High installation and setup cost), opportunities (Integration with sustainable architecture), and challenges (Limited regulations and standards) influencing the growth of the horticulture lighting market.
-Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and new product launches in the horticulture lighting market
-Market Development: Comprehensive information about lucrative markets - the report analyses the horticulture lighting market across varied regions.
-Market Diversification: Exhaustive information about new products, untapped geographies, recent developments, and investments in the horticulture lighting market
-Competitive Assessment: In-depth assessment of market shares, growth strategies, and product offerings of leading players like Signify Holding (Phillips Lighting) (Netherlands), Gavita International B.V.(Netherlands), Heliospectra(Sweden), ams-OSRAM International GmbH(Austria), and California LightWorks(US)

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