

WINTERGREEN RESEARCH, INC.

**Plant Factory Grow Lights and Controls Market Shares,
Strategies, and Forecasts, Worldwide, 2010 to 2016**

**Automated Process Farming - Grow Lights and
Plant Farm Computer Systems**



Picture by Susie Eustis

MOUNTAINS OF OPPORTUNITY

**WinterGreen Research, Inc.
Lexington, Massachusetts**

www.wintergreenresearch.com

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CHECK OUT THESE KEY TOPICS

Grow Lights
Moving light
Plant Factory
CEA
Phalaenopsis
Plant Advances In Technology

Plant Factory Growing
Plant Factory Server Controls

Light Farming
Green Flooring
Vegetation
Safe food
Organic vegetables
Plant Factory Vegetables
Plant Factories
Grow Light Plantations

OPPORTUNITY ABOUNDS

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Plant Factory Grow Lights and Controls Market Shares, Strategies, Forecasts, , Worldwide, 2010-2016

LEXINGTON, Massachusetts (May 27, 2010) – WinterGreen Research announces that it has a new study on: Plant Factory Grow Lights and Controls Market Shares and Forecasts, Worldwide, 2010-2016. Plant Factory Grow Lights and Controls are useful as a way to automate the farming process of growing vegetables and plants used for pharmaceuticals. Grow lamps are needed for warehouse year round food production. Crops are more productive than traditional farming by a factor of ten. The study has 254 pages and 115 tables and figures.

Plant factories are positioned as a significant addition to automated process. The ability to grow food consistently, locally represents a major breakthrough for humanity. People can grow food in warehouses and in the home, dedicating space that is efficient for producing food.

When you take the cost of transportation out of the food chain, this is a breakthrough of major propositions. When you make fresh, sanitary food available consistently, there is a major shift in how people live and the quality of life. When you increase the density of food production by a factor of ten, this is significant.

Food factories produce organic vegetables. This represents a next step in the application of automated process to everyday life. Automated process for farming provides immediate help for food stores that are depleting quickly. Inventors have started to look toward possibilities that allow farming practices that are not dependent on the climate. Food factories produce organic vegetables 24 hours a day. With the land available for farming depleting quickly, new types of farming are evolving.

A plant factory allows the growing of vegetables indoors all year round. It is a system that artificially creates the environment necessary for plants to grow by controlling the amount of culture solution, air, and light from light-emitting diodes (LED). Because the amount of light, temperature, humidity, and carbon dioxide (CO2) concentration levels can be optimized without being affected by the weather, the growth rate of vegetables is two to four times faster than those grown in open-air fields, and yields are ten to twenty times higher.

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Growth light spectrum positioning relates to understand the spectrum at which plants grow and that this is different from the spectrum that is visible to the human eye. Vendors are then able to build lights that maximize plant growth. These lights are significantly different from light used for human visible lighting.

Plant growth is a function of photosynthesis. This is not determined by lux or energy, but by the photons from the blue to red (400–700 nm) part of the spectrum. This is called growth light. Visible light has a somewhat different spectrum. Light for horticulture is in the visible part of electromagnetic radiation. For horticulture photons from the blue to red (400–700 nm) part of the spectrum are what stimulate growth. Natural daylight (global radiation) is measured in terms of energy (J orW) with a solar meter. New measures of light specific for plant factories are evolving.

A plant factory is a facility in which all the environmental elements for plant growth are artificially controlled. Lighting, temperature, humidity, carbon dioxide density, and culture solution are controlled. Systems are designed to support year-around, scheduled production of plants and vegetables.

The plant factories market can be divided into 2 major categories, new plant factory construction market and plant factory products market. Plants and vegetables are produced in the plant factories.

Plant factories come with complete artificial lighting in a totally-enclosed environment. Other plant systems combine the use of solar and artificial lighting. For the future, plant factories are being implemented is a highly automated, protected environment. Horticulture facilities are being built which permit year-round scheduled plant production.

Energy saving HID Lighting choices are implemented as metal halide (MH) or long lasting high pressure sodium (HPS) light sources . Traditional, shoe box, or curved back specification grade HID Lights with swivel arm, trunnion, slipfitter or wall mounts are offered. Factory installed photocells are optional on most models. Hood, shield, and wire guard accessories for HID Lights can be ordered separately.

Grow light systems, remote ballasts, reflectors, lamps, nutrients, light movers, timers and meters are offered.

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Plant factory grow lamp market forecast analysis indicates that the market in 2009 at \$127 million dollars is anticipated to reach \$3.8 billion worldwide by 2016. Market growth comes as solar energy makes it feasible to grow plants locally instead of shipping food long distance. Farming has been moving steadily in the direction of consolidation of workload.

Keywords: Grow Lights, Moving light, Plant Factory, CEA, Phalaenopsis, Plant Advances In Technology, Plant Factory Growing, Plant Factory Server Controls, Light Farming, Green Flooring, Vegetation, Safe food, Organic vegetables, Plant Factory Vegetables, Plant Factories, Grow Light Plantations, <http://www.wintergreenresearch.com/reports/PlantFactory.htm>

Plant Factory Grow Lights and Controls Companies Profiled

Plant Factory Market Leaders

Iwasaki Electric
Venture Lighting International / Sunmaster
Philips
Ozu Corporation
SolarMax
General Electric (GE)
Rambridge
Siemens

Plant Factory Market Participants

Daystar Technologies
Sunrise Biotechnology
Taiwan Floriculture Exports Association

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Plant Factory Grow Lights and Controls Market Strategies, Shares, And Forecasts, , Worldwide, 2010 to 2016

Report Methodology

This is the 443rd report in a series of primary market research reports that provide forecasts in solar energy, robots, communications, telecommunications, the Internet, computer, software, telephone equipment, health equipment, and batteries to store energy. Automated process and significant growth potential are a priorities in topic selection. The project leaders take direct responsibility for writing and preparing each report. They have significant experience preparing industry studies. Forecasts are based on primary research and proprietary data bases.

The primary research is conducted by talking to customers, distributors and companies. The survey data is not enough to make accurate assessment of market size, so WinterGreen Research looks at the value of shipments and the average price to achieve market assessments. Our track record in achieving accuracy is unsurpassed in the industry. We are known for being able to develop accurate market shares and projections. This is our specialty.

The analyst process is concentrated on getting good market numbers. This process involves looking at the markets from several different perspectives, including vendor shipments. The interview process is an essential aspect as well. We do have a lot of granular analysis of the different shipments by vendor in the study and addenda prepared after the study was published if that is appropriate.

Forecasts reflect analysis of the market trends in the segment and related segments. Unit and dollar shipments are analyzed through consideration of dollar volume of each market participant in the segment. Installed base analysis and unit analysis is based on interviews and an information search. Market share analysis includes conversations with key customers of products, industry segment leaders, marketing directors, distributors, leading market participants, opinion leaders, and companies seeking to develop measurable market share.

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Over 200 in depth interviews are conducted for each report with a broad range of key participants and industry leaders in the market segment. We establish accurate market forecasts based on economic and market conditions as a base. Use input/output ratios, flow charts, and other economic methods to quantify data. Use in-house analysts who meet stringent quality standards. Interviewing key industry participants, experts and end-users is a central part of the study. Our research includes access to large proprietary databases. Literature search includes analysis of trade publications, government reports, and corporate literature.

Findings and conclusions of this report are based on information gathered from industry sources, including manufacturers, distributors, partners, opinion leaders, and users. Interview data was combined with information gathered through an extensive review of internet and printed sources such as trade publications, trade associations, company literature, and online databases. The projections contained in this report are checked from top down and bottom up analysis to be sure there is congruence from that perspective.

The base year for analysis and projection is 2009. With 2009 and several years prior to that as a baseline, market projections were developed for 2010 through 2016. These projections are based on a combination of a consensus among the opinion leader contacts interviewed combined with understanding of the key market drivers and their impact from a historical and analytical perspective. The analytical methodologies used to generate the market estimates are based on penetration analyses, similar market analyses, and delta calculations to supplement independent and dependent variable analysis. All analyses are displaying selected descriptions of products and services.

This research includes referencde to an ROI model that is part of a series that provides IT systems financial planners access to information that supports analysis of all the numbers that impact management of a product launch or large and complex data center. The methodology used in the models relates to having a sophisticated analytical technique for understanding the impact of workload on processor consumption and cost.

WinterGreen Research has looked at the metrics and independent research to develop assumptions that reflect the actual anticipated usage and cost of systems. Comparative analyses reflect the input of these values into models.

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The variables and assumptions provided in the market research study and the ROI models are based on extensive experience in providing research to large enterprise organizations and data centers. The ROI models have lists of servers from different manufacturers, Systems z models from IBM, and labor costs by category around the world. This information has been developed from WinterGreen research proprietary data bases constructed as a result of preparing market research studies that address the software, energy, healthcare, telecommunications, and hardware businesses.

YOU MUST HAVE THIS STUDY

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Plant Factory Grow Lights and Controls Market Shares Strategies, and Forecasts, Worldwide, 2010-2016

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ABOUT THE COMPANY

WINTERGREEN RESEARCH, FOUNDED IN 1985, PROVIDES STRATEGIC MARKET ASSESSMENTS IN TELECOMMUNICATIONS, COMMUNICATIONS EQUIPMENT, HEALTH CARE, INTERNET, ENERGY, SOLAR ENERGY, AND ADVANCED COMPUTER TECHNOLOGY. INDUSTRY REPORTS FOCUS ON OPPORTUNITIES THAT EXPAND EXISTING MARKETS OR DEVELOP MAJOR NEW MARKETS. THE REPORTS ASSESS NEW PRODUCT AND SERVICE POSITIONING STRATEGIES, NEW AND EVOLVING TECHNOLOGIES, AND TECHNOLOGICAL IMPACT ON PRODUCTS, SERVICES, AND MARKETS. MARKET SHARES ARE PROVIDED. LEADING MARKET PARTICIPANTS ARE PROFILED, AND THEIR MARKETING STRATEGIES, ACQUISITIONS, AND STRATEGIC ALLIANCES ARE DISCUSSED. THE PRINCIPALS OF WINTERGREEN RESEARCH HAVE BEEN INVOLVED IN ANALYSIS AND FORECASTING OF INTERNATIONAL BUSINESS OPPORTUNITIES IN TELECOMMUNICATIONS AND ADVANCED COMPUTER TECHNOLOGY MARKETS FOR OVER 30 YEARS.

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