

LED Agricultural Grow Lights: Market Shares, Strategies, and Forecasts, Worldwide, 2015-2021

Table of Contents

LED Agricultural Grow Lights Executive Summary

The study is designed to give a comprehensive overview of the LED Agricultural Grow Lights market segment. Research represents a selection from the mountains of data available of the most relevant and cogent market materials, with selections made by the most senior analysts. Commentary on every aspect of the market from independent analysts creates an independent perspective in the evaluation of the market. In this manner the study presents a comprehensive overview of what is going on in this market, assisting managers with designing market strategies likely to succeed.

LED GROW LIGHTS MARKET EXECUTIVE SUMMARY	36
LED Grow Lights Market Driving Forces	36
Grow Light LEDs Mitigate Impact of Global Warming	37
Spectrum Of Growth Lights Is Tuned To The Plant Growing Task	38
LED Advantages over Halide Lamps	41
Growth Light Spectrum Positioning	45
LED Grow Lights Market Shares	45
LED Grow Light Market Forecasts	48
1. LED GROW LIGHT MARKET DESCRIPTION AND MARKET DYNAMICS	51
1.1 LED Grow Lights	51
1.1.1 LED Light Plant Factory In Japan	51
1.1.2 LED Lighting For Horticulture Sees Growth In Japan With Newly Equipped Factory	53
1.1.3 Philips 13,000 LED Pieces for Fifth-Largest Plant Factory in Japan	54
1.1.4 Philips Partners with LED Green Sense Farms	55
1.1.5 Philips 13,000 LED Pieces for Plant Factory in Osaka	56
1.1.6 Where LED Grow Lighting Is Applied	58
1.1.7 Illumination Induced Plant Light Cycle, Speeds Morphogenesis	59

1.1.8	Induced Illumination For The Cycle And Morphogenesis Of Plants	60
1.2	LED Grow Lights	60
1.2.1	LED Brightness: Grow Lights	61
1.2.2	LED Grow Lights Included in Systems Three Light Bands:	62
1.2.3	LED Light Systems Balanced Lighting	62
1.2.4	Grow LED Lights Peak Targeting	63
1.2.5	LED Light Systems LEDs Increase Indoor Plant Growth	64
1.2.6	LED Improves Indoor Garden Performance	65
1.2.7	LED Indoor Garden	65
1.2.8	LED Optimal for Plants	66
1.2.9	LED Colors And Light Spectrums	66
1.2.10	LED Light Spectrum For Plant Growth	66
1.2.11	LED Red Light	67
1.2.12	LED Blue Light	67
1.2.13	LED Size Fan Needed for LED Lighting Systems	68
1.2.14	LED Size Carbon Filter	68
1.2.15	LED Temperature For Plants	68
1.2.16	LED Grow Lights for Indoor Gardens	71
1.2.17	LED Plant Grow Lighting	73
1.3	Light For The Human Eye Is The Visible Part Of Electromagnetic Radiation	76
1.4	Photosynthesis	76
1.5	High-Power LED Illumination System For Photosynthetic Plants	77
1.5.1	LED Grow Light Technology Benefits	79
1.5.2	LED Wavelength of Light Impact On Plants	81
1.6	Light Reactions Increase Plant Yield	81
1.6.1	LED Lighting System	82
2.	LED GROW LIGHTS MARKET SHARES AND FORECASTS	85
2.1	LED Grow Lights Market Driving Forces	85
2.1.1	Grow Light LEDs Mitigate Impact of Global Warming	86
2.1.2	Spectrum Of Growth Lights Is Tuned To The Plant Growing Task	87
2.1.3	LED Advantages over Halide Lamps	90
2.1.4	Growth Light Spectrum Positioning	94
2.2	LED Grow Lights Market Shares	94
2.2.1	Illumitex Chosen by the Dutch Company PlantLab as the Exclusive Supplier of Advanced LED Grow Light Technology	98

2.2.2	Everlight Electronics	98
2.2.3	Syhdee	99
2.2.4	Valoya Target Markets	99
2.2.5	Valoya a Leading Provider Of Wide Spectrum LED Lights	100
2.2.6	Valoya Composition Of Light Spectrum	100
2.2.7	Shenzhen Sanxinbao Semiconductor Lighting Co., Ltd.	101
2.2.8	Philips Embraces Light In The Growth And Development Of Plants	102
2.2.9	GE Grow Lights	102
2.3	LED Grow Light Market Forecasts	104
2.3.1	LED Grow Light to Achieve \$1.8 Billion in 2021	108
2.3.2	Everlight Electronics Invests NT\$30 billion (US\$943 Million) To Expand LED Production	109
2.3.3	LED Grow Lights in Greenhouses	109
2.3.4	LED Grow Lights for Large Plant Factories	115
2.3.5	Growing More Plants	115
2.3.6	LED Grow Light Module Segment Market Forecasts	116
2.3.7	LED Grow Light Market Segments	117
2.4	LED Grow Light ROI	119
2.4.1	LED Grow Light Prices	120
2.4.2	Phillips LED Grow Light	123
2.4.3	Operating Cost Per Hour For A Light	155
2.4.4	LED Grow Lights Control Systems Solutions	155
2.5	LED Grow Lights Regional Analysis	157
2.5.1	LED Grow Light Operations in Japan	160
2.5.2	LED Grow Light Operations in Taiwan	160
2.5.3	Everlight Electronics Regional Segments	165
2.5.4	Everlight Shares Business Experience in China	166
3.	LED GROW LIGHT PRODUCT DESCRIPTION	171
3.1	Everlight Electronics	171
3.1.1	Everlight Electronics LED Grow Lights Control Over Crops	173
3.1.2	Everlight GL Flora	179
3.2	Philips LED Grow Lights	190
3.2.1	Philips GreenPower LED Toplighting Solution	193
3.2.2	Philips GreenPower LED Interlighting	195
3.3	Syhdee	196
3.3.1	Japan: World Largest LED Plant Grow Factory with LED Lighting	197

3.4	Epistar	204
3.5	Opto-LED Technology	205
3.5.1	LED GROW PANEL LIGHT	206
3.6	Shenzhen Sanxinbao Semiconductor Lighting Co., Ltd.	208
3.6.1	Evergrow IT2060 51x3w Programme Auto Dimmable Marine Aquarium LED Lighting	208
3.6.2	IT2060 with CE&ROHS 55*3w,Dimmable,LCD Player,Remote Controller,Shenzhen Sanxinbao Semiconductor Lighting Co. Ltd	209
3.6.3	2013 NOVA Integrated Led Grow Light Shenzhen Sanxinbao Semiconductor Lighting With CE&ROHS	209
3.7	Shenzhen Baisheng Semiconductor Lighting Co., Ltd.	212
3.7.1	Shenzhen Baisheng Semiconductor Lighting Tri-Band LED Grow Light	213
3.7.2	Shenzhen Baisheng Semiconductor Lighting LED Spectrum	215
3.8	Grow Northern / Philips LED Array for Grow Light Modules	216
3.9	LumiGrow	218
3.9.1	LumiGrow Grow Series Greenhouse Lights	218
3.9.2	LumiGrow Pro Series Cost-Effective LEDs Boost Crop Yield	220
3.9.3	LumiGrow Products	227
3.10	GrowBlu	228
3.11	TruLite	229
3.12	Shenzhen StarVanq Technology Co.	231
3.13	Nanning Lijie Energy Saving Electric Co., Ltd.	233
3.14	Shenzhen Baisheng Semiconductor Lighting Co., Ltd.	234
3.15	Shenzhen Baisheng Semiconductor Lighting Co., Ltd.	235
3.16	Shenzhen Baisheng Semiconductor Lighting Co., Ltd.	236
3.16.1	Super Power 255W ChloroBA2 LED Grow Light With Full Spectrum	236
3.16.2	Ebay Best Sellers 280 Watt SP114D Equal to Hot Sale 600W Led Grow Light 2013	237
3.16.3	Plant Dimmable 300W LED Grow Light	237
3.17	Shenzhen LG-LED Solutions Technology Limited	238
3.17.1	2015 ETL Listed Mars Hydro Led Grow Light 400w~1600w Mars 2,5watt Chips Led Grow Lights Full Spectrum Hydroponics Grow Equipment	238

3.17.2 2015 ETL Listed Mars II 1600W Led Grow Light,5W Chips Led Grow Lights Full Spectrum,Switchable Grow Light For Hydroponic Systems	238
3.17.3 Led Grow Light 2014 Hottest 600W(192pcs*3w), Reflector Switchable Led Grow Lights For Indoor Grow/Flowering Stock in US/UK/AU/CA	239
3.18 Twilight Group Co., Limited	239
3.18.1 Factory Wholesale 1200w 300w LED Grow Light Best For Flowering And Fruiting With Full Spectrum	240
3.18.2 Factory Full Spectrum 15W COB LED Grow Light	240
3.18.3 Full Spectrum 1000W LED Grow Light	240
3.19 Shenzhen Heng Yi Technology Co., Ltd. (LED Star Lighting)	241
3.19.1 China Cree LED Grow Light	241
3.19.2 Cree 200x3w LED Grow Light For Greenhouse Lettuce	241
3.19.3 Iris Rainbow High Power 5W LED Grow Light For Hydroponics System,Tomato, Medical Plants	241
3.20 Shenzhen Jiangjing Lighting Co., Ltd.	242
3.21 Shenzhen Sanxinbao Semiconductor Lighting Co., Ltd.	243
3.22 E. Shine Systems Limited	243
3.23 Dongguan A-One LED Lighting Co., Ltd.	243
3.24 Shenzhen Aladdin Precision Lighting Co., Ltd.	244
3.24.1 Forest Grower Innovative 9w 12w 15w ,45w ,54w PAR 38 LED grow light for aeroponics hydroponic aquaponic grow tent bloom veg	244
3.24.2 2015 5w Chips Switch Control 6 Color Modes 100% Modular High Power 4x100w LED Grow Light	245
3.24.3 Plant Growth High Quality Modular 6x75w LED Grow Light Factory	245
3.25 Shenzhen Dayton Electronic Co., Ltd.	245
3.25.1 Apollo4-Apollo20 140W 200W 280W 360W 430W 580W 640W 720W LED Grow Light	246
3.25.2 IP65 LED Grow Light For Plant for 120-600w	246
3.26 Shenzhen SOSCI Technology Co., Ltd.	246
3.27 Wenzhou Zhente Trade Co., Ltd.	247
3.28 Shenzhen Sanxinbao Semiconductor Lighting Co., Ltd.	249
3.29 GE Grow Lights	250
3.30 Black Dog LED Grow Lights	257

3.30.1	Black Dog LED Grow Light	267
3.31	Venture Lighting International SunMaster K3 Series L300	269
3.32	SuperNova LED Grow Lights	269
3.33	Ultrasun	271
3.34	Leiderkerk International Co.,Ltd High Power LED Grow Light	271
3.35	LED USA Systems UFO Grow Light	275
3.35.1	USA LED Light Systems Comet Magenta 150 LED Grow Light \$149.99 280	
3.36	Sunshine Systems SSLGP198567 45wt LED Grow Light	284
3.37	LEDHydroponics.co.uk	284
3.37.1	LEDHydroponics Red Light	285
3.37.2	LEDHydroponics Blue Light	285
3.37.3	LEDHydroponics Quantum LED lights 7 & 9 Band Spectrum Technology 285	
3.37.4	LEDHydroponics Sister Company Quantum LED	287
3.37.5	Efficient and Energy-Saving HEFL Lighting System Delivering Light	
Vertically Downward		294
3.37.6	Cultivation Without Using Agrichemicals	295
3.37.7	LEDHydroponics Quantum LED Grow Lights Scheduled Production For Stable Supply	296
3.37.8	LEDHydroponics Quantum Cultivation of Strawberries And Seedlings 296	
3.37.9	LED Hydroponics Products	297
3.37.10	LEDHydroponics Super Helios 6 Lights	304
3.37.11	LEDHydroponics LEDbud	308
3.37.12	LEDHydroponics	311
3.37.13	Quantum 7 & 9 Band Spectrum Technology	311
3.37.14	Quantum LED Light Absorption	312
3.37.15	LEDHydroponics LED Grow Lights	314
3.37.16	Quantum LED Grow Lights	315
3.38	Hydrogrow	316
3.39	T6 HO Grow Lights	316
3.40	Valoya	317
3.40.1	Valoya L-series for Growth Chambers and Multilayers	318

3.40.2	Valoya Spectra	321
3.40.3	Valova C-series for High Intensity Chambers and Shelves	322
3.40.4	Valoya B-Series LED Grow Lighting for Interlighting and Multilayer	323
3.40.5	Valoya R-Series LED Grow Lighting for Greenhouse	324
3.41	Illumitex	325
3.41.1	Illumitex LED Grow Lights for Controlled Environment Agriculture (CEA)	326



ESII)	3.41.2	Illumitex LED Grow Lights Eclipse Series (ESI &	326
-------	--------	---	-----



3.41.3	Illumitex LED Grow Lights Safari	327
3.41.4	Illumitex LED Grow Lights Quantum	327
3.41.5	Illumitex NeoSol DS Grow Light	329
3.41.6	Illumitex Greenhouse LED Light	331
3.41.7	Illumitex Quantum Premium Product	331
3.41.8	Illumitex Quantum Research LED Grow Light	332
3.42	Solid Apollo LED Grow Lights Tuned to Optimize Plant Growth with Red and Blue Light	333
3.42.1	Titan LED Grow Lights from Solid Apollo LED	335
3.42.2	Midas LED Grow Lights from Solid Apollo LED	335
3.43	Hubbell Industrial Lighting Addresses Indoor Horticulture with NutriLED Featuring 60-Degree Beam Spread	337
3.44	Novagant	338
3.44.1	Novagant AlKanna	339

4. LED GROW LIGHT TECHNOLOGY	341
4.1 Plant Grow Lights for Indoor Gardening / Supplemental Greenhouse Lighting	341
4.2 Solar Powered LED Lamps	345
4.2.1 Solar Lighting Eliminates the Need for Electricity in Rural Areas.	346
4.3 AC LEDs	346
4.4 Blue Wavelength Helps Leaves And Stalks Red Wavelength Promotes Photosynthesis	347
4.4.1 Light Absorption for Photosynthesis	348
4.4.2 Valoya Composition Of Light Spectrum	351
4.4.3 Grow Light Spectrum Wavelength Experiment	351
4.4.4 LumiGrow Pro Series Cost-Effective LEDs Boost Crop Yield	352
5. GROW LIGHT COMPANY PROFILES	355
5.1 Advanced Lighting Technologies	355
5.1.1 APL Engineered Materials	356
5.1.2 Advanced Lighting Technologies / Venture Lighting International / Sunmaster	357
5.1.3 Venture Advanced Lighting Technologies Company	358
5.1.4 Venture Lighting / Sunmaster Light & Plants	358
5.1.5 Venture Lighting / Sunmaster Hydroponic Product Support	359
5.1.6 Venture Lighting / Sunmaster PAR and Plant Response Curve	359
5.1.7 Sunmaster® Comprehensive Supply of HID Lamps	362
5.1.8 Venture Lighting PAR Watts for Plants	364
5.1.9 Venture Lighting Photons	364
5.1.10 Venture Lighting	366
5.1.11 Venture Lighting Global Perspective	368
5.1.12 Venture Lighting Metal Halide Innovator	368
5.1.13 Venture Lighting International / Sunmaster	369
5.2 Black Dog LED	370
5.2.1 Black Dog LED Prices	370
5.3 Conviron	371
5.4 Dalsem Group	372
5.5 Daystar	373
5.6 Delta Group	374

LED Agricultural Grow Lights, Table of Contents and List of Tables and Figures

5.6.1	Delta Group Data Center Power	374
5.6.2	Delta Group Data Center Power	375
5.6.3	Delta Group Renewable Energy Solutions	378
5.6.4	Delta Group Revenue	379
5.7	Epistar	384
5.7.1	Epistar	385
5.7.2	Epistar Revenue	388
5.7.3	Epistar Leads the LED Era	390
5.8	Everlight Electronics Co. Ltd.	392
5.8.1	Everlight Business	393
5.8.2	Everlight Revenue	394
5.8.3	5.20.3 Everlight LED Grow Lights GI Flora	396
5.20.4	Everlight LED Lifestyle Lights	396
5.20.5	Everlight Electronics LED Innovation	396
5.8.4	Everlight Electronics Regional Segments	397
5.8.5	Everlight Electronics Products	401
5.8.6	Everlight LED Grow Lights GI Flora	401
5.8.7	Everlight LED Lifestyle Lights	402
5.9	Fujitsu	402
5.9.1	Fujitsu Implements the Internet of Things	405
5.9.2	Fujitsu Ecosystem of Smartphone	407
5.10	GE Lighting Solutions	409
5.10.1	General Electric Lighting	411
5.10.2	GE Tetra EdgeStrip and Tetra miniStrip	411
5.10.3	GE Evolve LED Fixtures Reduce Auto Dealership's Energy Costs by \$49,000 Annually	412
5.10.4	GE Scorecard	414
5.10.5	GE Manufactures Electrical Distribution And Control Products, Lighting And Power Panels, Switchgear And Circuit Breakers	417
5.10.6	GE Home & Business Solutions	417
5.10.7	GE Offers Major Home Appliances	418
5.10.8	GE Lamps	418
5.10.9	GE Lighting Solutions	419
5.10.10	GE Healthcare	419
5.10.11	GE Healthcare Regional P&Ls	420
5.10.12	GE Key Medical Care Areas: Cardiology	422
5.10.13	GE Neurology	422

Copyright 2015, WinterGreen Research, Inc.

TOC-9

www.wintergreenresearch.com

www.wintergreenresearch.com/blog

Tel 781-863-5078

email: info@wintergreenresearch.com

Lexington, Massachusetts

5.10.14 GE Emergency Medicine	423
5.10.15 GE Oncology	423
5.10.16 GE Women’s Health	424
5.10.17 GE Healthcare Oxygen Humidifier	425
5.10.18 GE Healthcare Air/O2 Blender	428
5.10.19 GE M2100 Air/O2 Blender	429
5.10.20 GE Invests \$100 Million to Grow its LED Lighting Business; Forms New Strategic Alliance	430
5.10.21 GE Supports Innovation	432
5.10.22 General Electric Offers Wind Turbine Customers Clean Energy From Solar Panels	432
5.11 General Hydroponics	434
5.12 Genesis Photonics (GPI)	435
5.12.1 Genesis Photonics Year 2014 Revenue	435
5.12.2 Genesis Photonics 3D COB	436
5.13 Grow Northern	436
5.14 GrowBlu	438
5.15 GYLED	439
5.15.1 GYLED LED Lights	441
5.15.2 GYLED Grille LED Lights	442
5.16 Shanxi Guangyu LED Lighting Co. Ltd	443
5.16.1 Shanxi Guangyu LED Lighting Co. Ltd. Certifications	444
5.17 Hon Hai	446
5.17.1 Hon Hai Precision Ind. Co. Ltd.	446
5.17.2 Hon Hai Precision Industry Ltd / Foxconn	447
5.17.3 Hon Hai Group Plant Factories	447
5.17.4 Hon Hai Partners	448
5.17.5 Hon Hai Establishes First LED Street Light Production Line in Guizhou	449
5.18 Hydrofarm	450
5.18.1 Hydrofarm Manufacturer Of Hydroponics Equipment And High-Intensity Grow Lights	451
5.18.2 Hydrofarm AgroSun Gold Halide	455
5.19 Illumitex	456
5.19.1 Illumitex LED Grow Lights ROI	456

5.19.2 Illumitex Chosen by the Dutch Company PlantLab as the Exclusive Supplier of Advanced LED Grow Light Technology	457
5.20 Iwasaki Electric	458
5.20.1 Iwasaki’s Quality Oriented Culture	459
5.20.2 Iwasaki EYE Hortilux™	460
5.20.3 EYE Lighting International of North America	474
5.21 LEDengine	475
5.22 LEDsense Technologies / Solid Apollo LED Lighting	476
5.23 LumiGrow	476
5.23.1 LumiGrow LED Supplier: Shenzhen Panda Grow Technology Co., Ltd.	477
5.23.2 LumiGrow: Shenzhen Sanxinbao Semiconductor Lighting Co., Ltd.	477
5.24 Nihon Advanced Agri Corporation	478
5.24.1 Nihon Advanced Agri Evolves Agriculture Into Cosmetics And Wellness	479
5.24.2 Nihon Advanced Agri	481
5.24.3 Nihon Advanced Agri Business Description	481
5.24.4 Nihon Advanced Agri Features	482
5.24.5 Nihon Advanced Agri Plant Factory Business	483
5.24.6 Nihon Advanced Agri Ceramics	484
5.25 Novagant	486
5.26 Opto-LED Technology	486
5.27 Ozu Corporation	497
5.28 Philips Horticulture Lamps	497
5.28.1 Philips Lighting Positioning	499
5.28.2 Royal Philips Electronics of the Netherlands	499
5.28.3 Philips Enables Consumer Lifestyle	501
5.28.4 Philips Lighting	502
5.28.5 Philips Market Opportunity	503
5.28.6 Philips Visicu	504
5.28.7 Philips Addresses Healthcare Landscape	505
5.28.8 Philips/Respironics Monitoring Solution Powered By Cinterion TC65i:	508
5.28.9 Philips Healthcare Revenue	510
5.28.10 Philips Accelerate! Positioning	511

5.29	Rockwool® Group	512
5.29.1	Grodan Rockwool Grow Blocks	513
5.30	Rambridge	514
5.31	Ringdale ActiveLED®	515
5.32	SolarMax	515
5.33	Sunleaves Garden Products	518
5.34	Sunlight Supply	519
5.34.1	Sun System The #1 Leading Brand Of Grow Lights For Indoor And Greenhouse Gardening	520
5.35	Syhdee	522
5.35.1	Syhdee Factory Direct Price	530
5.36	Taiwan Floriculture Exports Association	530
5.37	USALight	532
5.38	Valoya	533
5.38.1	Valoya Composition Of Light Spectrum	534
5.38.2	Valoya Target Markets	534
5.39	Selected Grow Light Companies	535
5.39.1	Selected Grow Light Companies	539
5.40	Selected Chinese Grow Light Companies / Shenzhen Wayet Lighting Co., Ltd.	542
5.40.1	full spectrum led grow lights (600w LED for medical plant growing)	542
5.40.2	cheap 600w led grow lights for sale (600w LED for medical plant growing)	543
5.40.3	3w led chip 660nm 300W LED grow light for medical plants growing	543
5.41	Shenzhen Herifi Technology Co., Ltd.	544
5.41.1	hot sale 100w 200w 400w 600w 900w 1600w full spectrum COB led grow light	544
5.41.2	Full spectrum apollo 6 198W led grow light hydroponic supplies Leds For Indoor Plants LED Plant Lamp lighting	544
5.41.3	led-grow-lights canada full spectrum grow light full spectrum 100W 200W 400W 600W 900W 1600W COB LED grow light	545
5.42	Shenzhen Lumini Technology Co., Ltd.	546
5.42.1	Lumini Grow System 600 watt led grow light	546

5.42.2 Lumini Grow System led grow light medical plant	546
5.42.3 China supplier high power LuminiGrow 450R1 full spectrum best led grow lights	546
5.43 Shenzhen Qkwin Technology Co., Ltd.	547
5.43.1 Wholesale Led Grow light Cheap Led Grow Light 180W UFO Led Grow Lights,Grow Led Light ,Netherlands Led Grow Lights Medical Plant	548
5.43.2 100*3W Led Grow Light 300W Full Spectrum 9Bands Hydroponic acuario Growing Lamp For Medical Plant/Vegetables Dropship	548
5.43.3 New Arrival 2015 Top Sale 300W Hydroponics Led Grow Light 9Band 410nm UV Full Spectrum Lights For Medical Plant	548
5.44 Wuxi Rave Optoelectronics Technology Co., Ltd.	549
5.44.1 High power programmable and dimmable 900w led grow light for plants growing550	
5.44.2 LED Grow Lights 900w 300*3w Full Spectrum 8 Bands for Hydroponics Medical Plant	550
5.44.3 Modularized design super power 1200w full spectrum LED Grow Lights for indoor plants	550
5.45 Shenzhen Panda Grow Technology Co., Ltd.	551
5.45.1 agricultural led grow lights,full spectrum 5w chip led grow lights	552
5.45.2 Cheapest 360w LED Grow Light Hydroponics Systems Agricultural Hydroponics Full Spectrum LED Grow Lights	552
5.45.3 2014 advanced flexible 45w,180w,270w,360w Osram led grow light sunlight spectrum best for MJ, medical plants ,veg growing	552
5.46 Shenzhen Gehl Lamps Co., Ltd.	553
5.46.1 2015 best selling products Noah series cob led grow light full spectrum led grow lights 1000w led grow lights	553
5.46.2 2015 best selling led grow lights 900w led grow light full spectrum commercial greenhouse grow led light	554
5.46.3 2015 hot selling diy led grow light kits led horticulture lighting cheap 600w led grow lights for sale	554
5.47 Shenzhen SOSCI Technology Co., Ltd.	555
5.47.1 wholesales cree high lumen 1000w led grow light	555
5.47.2 Best Cheap 600w Full Spectrum LED Grow Lights	556
5.47.3 hot sale low price high power apollo led grow light	556
5.48 Shenzhen Sanxinbao Semiconductor Lighting Co., Ltd.	557
5.48.1 Revolutionary Modular High Power 1000W LED Grow Light	557

5.48.2	Nova S8 270W hydroponic led grow light panels with CE RoHS led grow light	557
5.48.3	2014 NOVA Integrated Led Grow Light Led 6500k With Full Spectrum	558
5.49	Shenzhen Cidly Group Co., Ltd.	558
5.49.1	2015 new hydroponics CIDLY LED GROW LIGHT 60*3w led grow light indoor plants grow lights	559
5.49.2	Made in China Module Design 180W CIDLY LED series 60x3w led grow light Full Spectrum for medical plants	559
5.49.3	Cidly A8 LED grow light 280W	559
5.50	Shenzhen CT Lighting Technology Co., Ltd.	560
5.50.1	810w dimmable full spectrum led grow light with three independent channels	560
5.50.2	Best quality full spectrum led grow lights	560
5.50.3	Intelligent smart g3 led grow light, floating mini solar lights	560
5.51	Shenzhen Gerylove Technology Co., Ltd.	561
5.51.1	Hot Promotion!!! 300w led grow light full spectrum led plant grow light 300w led hydroponic grow light for greenhouse	562
5.51.2	Hot Sale !! 300W LED Grow Light Full Spectrum Led Grow Lights , Grow Light LED , 300W Grow Light for Greenhouse	562
5.51.3	UFO Led Grow Light 135W Grow Led Light 3W Led UFO Grow Light Led	562
5.52	Shenzhen Baisheng Semiconductor Lighting Co., Ltd.	563
5.52.1	Bysen cultivators used cob led grow light of cfl grow light	563
5.52.2	Innovative Design 255W ChloroBA LED Grow Light Full Spectrum Perfectly Replace HPS	564
5.52.3	Best Design 560W Top Rated LED Grow Lights Top Quality LED Grow Lighting	564
5.53	Shenzhen Ecosun Aquarium Lighting Co., Ltd.	565
5.53.1	2015 New Brand GrowSmart Plus Cree led grow light 1200w	565
5.53.2	Best selling GrowSmart 4 WiFi control rgb led grow light panel for greenhouse	565
5.53.3	Patent design module COB led grow light	566
5.54	Shenzhen Gehl Lamps Co., Ltd.	566
5.54.1	1000w led grow lights for medical plants 2014	567

5.54.2	New power integrated led grow lighting 5w leds & COB combination	567
5.54.3	Noah 600w led grow light with 90w integrated cob grow light led for plants	567
5.55	Shenzhen Casa Electronic Co., Ltd.	568
5.55.1	Grow System 500W led grow light	569
5.55.2	TOP Sale 300W full spectrum led grow light	569
5.55.3	Professional Manufacture 300W diy cob led grow light	569
5.56	Nanning Lijie Energy Saving Electric Co., Ltd.	570
5.56.1	2015 NEW DESIGN Apollo 6 90*3W Full Spectrum LED Grow Light Best for Indoor Plants,Green House with CE,FCC,RoHS Approved	570
5.56.2	500w grow light 168x3w chip high quality low power consumption factory price high quality professional led grow light	571
5.56.3	400w grow light 133 leds x 3 watt full spectrum customized color ratio for indoor/ hydroponic / greenhouse plants led grow light	571
5.57	Hopthink (Shenzhen) Industry Co., Ltd.	572
5.57.1	5w chip led grow lights with CE RoHS approval	572
5.57.2	Full spectrum led grow lights Apollo HTGL-G-Apollo 6	573
5.57.3	New Arrial Apollo LED Grow light HTGL-G-Apollo 6	573
5.58	Shenzhen Highway Technology Co., Ltd.	574
5.58.1	2014 New Arrival Growmax series full spectrum led grow light(360/300/240/180*5w)	574
5.58.2	Hydroponics growmax full spectrum LED Grow Light for medical plants(1800w/,1500w/300*5w,1200w/240*5w,600w/120*5w,300w/60*5w)	574
5.58.3	2014 UWAY series wholesale led grow lights with adjustable spot lights	575
5.59	Shenzhen SOSCI Technology Co., Ltd.	576
5.59.1	high power high par value full spectrum 1200 watt led grow lights	576
5.59.2	best 600w 400w 300w 120w full spectrum led grow light	576
5.59.3	2014 Best Hans Panel High Power 1000w LED Grow Light	577
5.60	Shenzhen Topline Optoelectronic Co., Ltd.	578
5.60.1	Full spectrum programmable 2014 900W Matrix new design S900 led grow light	578
5.60.2	Newest Matrix S600 Smart dimmable led grow lighting	578
5.60.3	Latest design Matrix S900 90 watt ufo shape 600W 3W LED grow lights	579

5.61	Shenzhen Rosun Lighting Technology Co., Ltd.	580
5.61.1	Apollo_18_LED_Grow_Light red blue uv ir led grow light 600 watt	580
5.61.2	full spectrum high power 120 watt led grow light,led growth taller and stronger	580
5.61.3	diy led grow light 3w high power red blue spectrum ratio option	581
5.62	Shenzhen JYO Technology Co., Ltd.	582
5.62.1	HOTSALE 90 watt ufo led grow lights for plant growing in grow tent or grow box	582
5.62.2	New design 100W ufo led grow light with full spectrum best for grow tent grow box greenhouse	582
5.62.3	JYO led grow lamp 725w Apollo 20 Full Spectrum led grow lights for indoor plants	582
5.63	Shenzhen Houyi Lighting Co., Ltd.	583
5.63.1	Best Seller 90 watt ufo led grow light,led grow lighting for best flowering and fruiting with full spectrum	583
5.63.2	shenzhen led grow light COB+Lens houyi led chip Modular high power grow light 60degree full spectrum 100w/200w/300w/400w/450w	583
5.63.3	Professional Manufacture full spectrum 300w high power led grow lights for medical plant,hydroponic system	584
5.64	Zhongshan Guzhen Lohas Led Lighting Factory	584
5.64.1	2015 ebay worldwide shipping 132w/136w 630NM:460NM AC85-264V apollo led grow light garden used greenhouses for sale	585
5.64.2	wholesale led grow lights 144x3W 630nm/460nm AC 100~240V led aquarium light looking for products to represent	585
5.64.3	helios led grow lights 150W 630nm/460nm AC 100~240V led aquarium light looking for products to represent	585
5.65	Shenzhen Jiangjing Lighting Co., Ltd.	586
5.65.1	led grow light bar,aluminum housing led grow lights 27w with passive cooling	586
5.65.2	24pcs*3W 60 watt led grow lights europe Red(630nm)/Blue(460nm) customized product	586
5.65.3	2014 Best choice innovative 660nm 460nm DC12V IP68 waterproof full spectrum led grow lights	587
5.66	Twilight Group Co., Ltd.	588
5.66.1	Spider Led Grow Lights / Apollo LED Grow Light / Classical LED Grow Light	588

5.66.2 Hydroponic systems good well 432w COB led grow light	588
5.66.3 NEW design spider 2 series 2X COB best small tant led grow light	588
5.67 Shenzhen Starvanq Technology Co., Ltd.	589
5.67.1 newest technology integrated vanq led grow lights with bestreflector, 7band 120-300w led grow light best for growing flower	590
5.67.2 led grow light bar, aluminum housing led grow lights 36w with passive cooling	590
5.67.3 led grow light t8 tube, indoor led plant growing light	590

LIST OF TABLES AND FIGURES

Table ES-1	36
Aspects of LED Grow Light	36
Table ES-2	37
Grow Light Garden Modules	37
Table ES-3	40
LED Grow Light Market Driving Forces	40
Table ES-4	41
Grow Light Benefits Of Lower Heat Levels:	41
Table ES-5	43
LED Grow Lights Market Positioning	43
Table ES-6	44
LED Grow Light Environmental Controls	44
Figure ES-7	47
LED Grow Lights Market Shares, Dollars, Worldwide, 2014	47
Figure ES-8	50
LED Grow Light Modules for Greenhouses and Plant Factories, Market Forecasts Dollars, Worldwide, 2015-2021	50
Figure 1-1	52
Growing Lettuce Using LED Grow Lights	52

Figure 1-2	53
Japanese Miriai Co. Ltd. Largest Plant Factory Uses LEDs from Syhdee	53
Figure 1-3	56
Philips 13,000 LED Pieces for Plant Factory in Osaka	56
Figure 1-4	58
LED Lighting Tests In Display Cases	58
Table 1-5	69
LED Quick Reference Growing Guide	69
Table 1-6	70
LED Vegetative Guide for Hydroponics	70
Table 1-7	71
LED Flowering for Hydroponics	71
Table 1-8	72
LED Phases Of Plant Growth	72
Figure 1-9	74
LED Plant Grow Lighting	74
Table 1-10	80
LED Grow Light Technology Benefits	80
Table 1-11	83
LED Plant Growth Lighting System Target Markets	83
Table 1-12	84
LED Diode-Based Lighting Advantages:	84
Table 2-1	85
Aspects of LED Grow Light	85
Table 2-2	86
Grow Light Garden Modules	86
Table 2-3	89

Copyright 2015, WinterGreen Research, Inc.

TOC-18

www.wintergreenresearch.com

Tel 781-863-5078

Lexington, Massachusetts

www.wintergreenresearch.com/blog

email: info@wintergreenresearch.com

LED Grow Light Market Driving Forces	89
Table 2-4	90
Grow Light Benefits Of Lower Heat Levels:	90
Table 2-5	92
LED Grow Lights Market Positioning	92
Table 2-6	93
LED Grow Light Environmental Controls	93
Figure 2-7	96
LED Grow Lights Market Shares, Dollars, Worldwide, 2014	96
Table 2-8	97
LED Grow Light Market Shares, Dollars, Worldwide, 2014	97
Figure 2-9	98
Everlight’s GL-Flora Provides Accelerated Photosynthesis Lights	98
Figure 2-10	101
Shenzhen Sanxinbao Semiconductor Lighting Co., Ltd.	101
Figure 2-11	103
GE Grow Light Facility Located in Japan, Tagajo, Miyagi Prefecture	103
Figure 2-12	106
LED Grow Light Modules for Greenhouses and Plant Factories, Market Forecasts Dollars, Worldwide, 2015-2021	106
Table 2-13	107
LED Grow Light Modules, Dollars, Shipments, Worldwide, 2015-2021	107
Table 2-14	110
Hectares of Green Houses By Region and Country Green Houses, Worldwide, 2014	110
Table 2-15	110

Installed Base of Grow Light Systems By Region and Country Green Houses, Worldwide, 2014	110
Table 2-16	110
Penetration Analysis: LED Grow Lights vs Installed Base of Grow Lights By Region Green Houses and Plant Factories, Worldwide, 2015-2021	110
Figure 2-17	118
Grow Light Environments	118
Figure 2-43	121
LED USA Systems 90W Tri-Band UFO	121
Table 2-44	138
LEDHydroponics Helios Lights	138
Table 2-45	140
LEDHydroponics Super Helios and UpLight Grow Lights	140
Table 2-46	142
LEDHydroponics Photon Pro Lights	142
Table 2-47	144
LEDHydroponics BudBooster	144
Figure 2-18	157
LED Grow Lights And Greenhouse Cultivation Control Systems	157
Figure 2-19	158
LED Grow Lights Regional Market Segments, Dollars, 2014	158
Table 2-20	159
LED Grow Lights Regional Market Segments, 2014	159
Figure 2-21	162
Everlight Electronics LED Grow Lights	162
Table 2-22	163
Plant Factory LED Grow Light Strategies in Taiwan	163
Figure 2-23	165

Everlight Electronics Regional Segments	165
Figure 3-1	171
Everlight’s GL-Flora Provides Accelerated Photosynthesis Lights	171
Table 3-2	174
Everlight Electronics LED Grow Lights Benefits	174
Figure 3-3	175
Everlight Electronics Sun vs. LED for Growing	175
Table 3-4	176
Everlight Electronics LED Light Plant Growing Advantages	176
Table 3-5	177
Everlight Electronics Key Features	177
Table 3-6	178
Everlight Electronics LED Grow Light Applications	178
Figure 3-7	179
Everlight Grow Light GL Flora Plant Container Module	179
Figure 3-8	180
Everlight Grow Light GL Flora	180
Table 3-9	181
Everlight GL Flora Features	181
Figure 3-10	182
Everlight GL Flora Product Specifications	182

Product Specification

Parameter	Description		
	R:G:B = 9:0:1	R:G:B = 8:0:2	R:G:B = 8:1:1
Optical lens	PC Optical lens		
Housing	Anodizing Aluminum Housing		
Pin Type	2 copper pins, G5 Standard Size		
Operation Temperature	-20°C ~ +35°C		
Storage Temperature	-40°C ~ +70°C		
Power Input	48 VDC Input		
Illuminance (lux)	850 min.	900 min	1500 min
x	0.415~0.445	0.315~0.345	0.350~0.380
y	0.135~0.165	0.090~0.120	0.245~0.275
PPFD	85 min.	85 min.	70 min.

Notes:

1. The illuminance (lux), CIE x, y and PPFD (Photosynthesis Photon Flux Density, $\mu\text{mol}/\text{m}^2/\text{s}$) are measured in the midpoint of the luminarie at a distance of 15 cm.
2. The illuminance, CIE x, y and PPFD with standard $\pm 5\%$ tolerance.

182

Figure 3-11	183
Everlight GL Flora Electro-Optical-Thermal Characteristics Curves	183
Figure 3-12	184
Everlight Grow Light GL Flora Characteristics Intensity Distribution Curve	184
Figure 3-13	185
Everlight Relative Spectral Distribution	185
Figure 3-14	186
Everlight GL Flora Module Product Dimensions	186
Table 3-15	187

Everlight LED Growlight Tube Products	187
Table 3-16	189
Everlight Electronics Co., Ltd. GL-Flora Product Series Features	189
Figure 3-17	190
Philips Horticulture Lamps	190
Table 3-18	191
Philip Light Recipes For Different Horticultural Segments	191
Figure 3-19	192
Philips LED Grow Lighting GreenPower LED Toplighting	192
Figure 3-20	193
Philips GreenPower LED Toplighting Solution	193
Figure 3-21	195
Philips GreenPower LED Interlighting	195
Figure 3-22	198
Japan: World Largest LED Plant Grow Factory with LED Lighting	198
Table 3-23	199
Syhdee Best Selling Products	199
Figure 3-24	200
Syhdee Best Selling LED Grow Lights	200
Figure 3-25	202
Syhdee Plant LEDs	202
Figure 3-26	210
Shenzhen Sanxinbao Semiconductor Lighting Products	210
Figure 3-27	211
Shenzhen Sanxinbao Semiconductor Lighting Co., Ltd.	211
Figure 3-28	212
Shenzhen Baisheng Semiconductor Lighting Tri-Band LED GROW LIGHT	212

Table 3-29	214
Shenzhen Baisheng Semiconductor Lighting 120-watt TRI-Band LED Grow Light Features:	214
Figure 3-30	219
LumiGrow Grow Series LED Greenhouse Lights.	219
Figure 3-31	220
LumiGrow Targeted Spectral Output	220
Table 3-32	223
LumiGrow LED Grow Light Applications	223
Table 3-33	224
LumiGrow LED Grow Light Key Features	224
Table 3-34	226
LumiGrow PRO 325 Grow Light Specifications	226
Table 3-35	227
LumiGrow PRO 650 Grow Light Specifications	227
Table 3-36	229
TruLite LED grow Light Suppliers	229
Figure 3-37	232
Shenzhen StarVanq Technology Tri-Band LED Grow Lights	232
Figure 3-38	233
Nanning Lijie Energy Saving Electric Tri-Band LED Grow Light	233
Figure 3-39	234
Shenzhen Baisheng Semiconductor Lighting Tri-Band LED Grow Light	234
Figure 3-40	235
Shenzhen Baisheng Semiconductor Lighting Tri-Band LED Grow Light	235
Figure 3-41	247
Shenzhen SOSCI Technology Italian 600w 300w tri band LED Grow Light	247
Figure 3-42	248

Wenzhou Zhente Trade 300w Tri Band Led Grow Light	248
Figure 3-43	249
Shenzhen Sanxinbao Semiconductor Lighting Co., Ltd. LED Grow Lights	249
Figure 3-44	251
GE Grow Light Facility Located in Japan, Tagajo, Miyagi Prefecture	251
Figure 3-45	253
GE LEDs Used to Grow Lettuce	253
Figure 3-46	254
GE Grow Light Facility Aisles	254
Figure 3-47	255
LED Lights Leverage Plant Physiology	255
Table 3-48	256
GE Grow Lighting Locations	256
Figure 3-49	258
Black Dog LED light	258
Figure 3-50	260
Black Dog LED light Platinum XL-U	260
Figure 3-51	261
Black Dog LED Light Module Product Line	261
Table 3-52	262
Black Dog LED Light Platinum XL-U Specifications	262
Figure 3-53	264
Black Dog LED Light Platinum XL-U	264
Table 3-54	265
Black Dog LED Light Description	265
Figure 3-55	268
Black Dog LED Light Platinum XL	268

Figure 3-56	270
SuperNova LED Grow Light	270
Table 3-57	272
Leiderkerk International High Power LED Functions	272
Table 3-58	273
Leiderkerk International High Power LED Application	273
Table 3-59	274
Leiderkerk International High Power LED Features:	274
Figure 3-60	275
USA LED Systems 90W Tri-Band UFO \$185	275
Figure 3-61	276
USA LED Systems 90W Tri-Band UFO	276
Figure 3-62	277
LED USA Systems UFO Grow Light Specifications	277
Source: LED USA Systems.	277
Figure 3-63	278
LED USA Systems	278
Figure 3-64	279
LED USA 600 W Tri-Band Grow Light Systems	279
Figure 3-65	281
USA LED Light Systems Comet Magenta 150 LED Grow Light	281
Figure 3-66	282
USA LED Grow Lights	282
Figure 3-67	283
USA LED Efficiency	283
Figure 3-68	287
LEDHydroponics Quantum LED Grow lights	287

Figure 3-69	288
Compare LED Grow Lights	288
Figure 3-70	289
LEDHydroponics Quantum LED Grow Lights	289
Figure 3-71	290
LEDHydroponics Quantum LED Grow Lights	290
Figure 3-72	291
LEDHydroponics Quantum LED Grow Lights	291
Figure 3-73	292
LEDHydroponics Quantum LED Grow Lights	292
Figure 3-74	293
LEDHydroponics Quantum LED Grow Lights Height Adjustable Lighting	293
Figure 3-75	294
LEDHydroponics Quantum HEFL Light Is Delivered Vertically Downward With Specially Designed Reflectors (Cultivation Of Frill Lettuce)	294
Figure 3-76	295
LEDHydroponics Quantum LED Grow Lights Even Illumination	295
Figure 3-77	296
LEDHydroponics Quantum Cultivation of Strawberries	296
Table 3-78	297
LED Hydroponics Products	297
Table 3-79	297
LEDHydroponics Helios Lights	297
Table 3-80	300
LED Hydroponics Super Helios and Up Light Grow Lights	300
Table 3-81	301
LED Hydroponics Photon Pro Lights	301

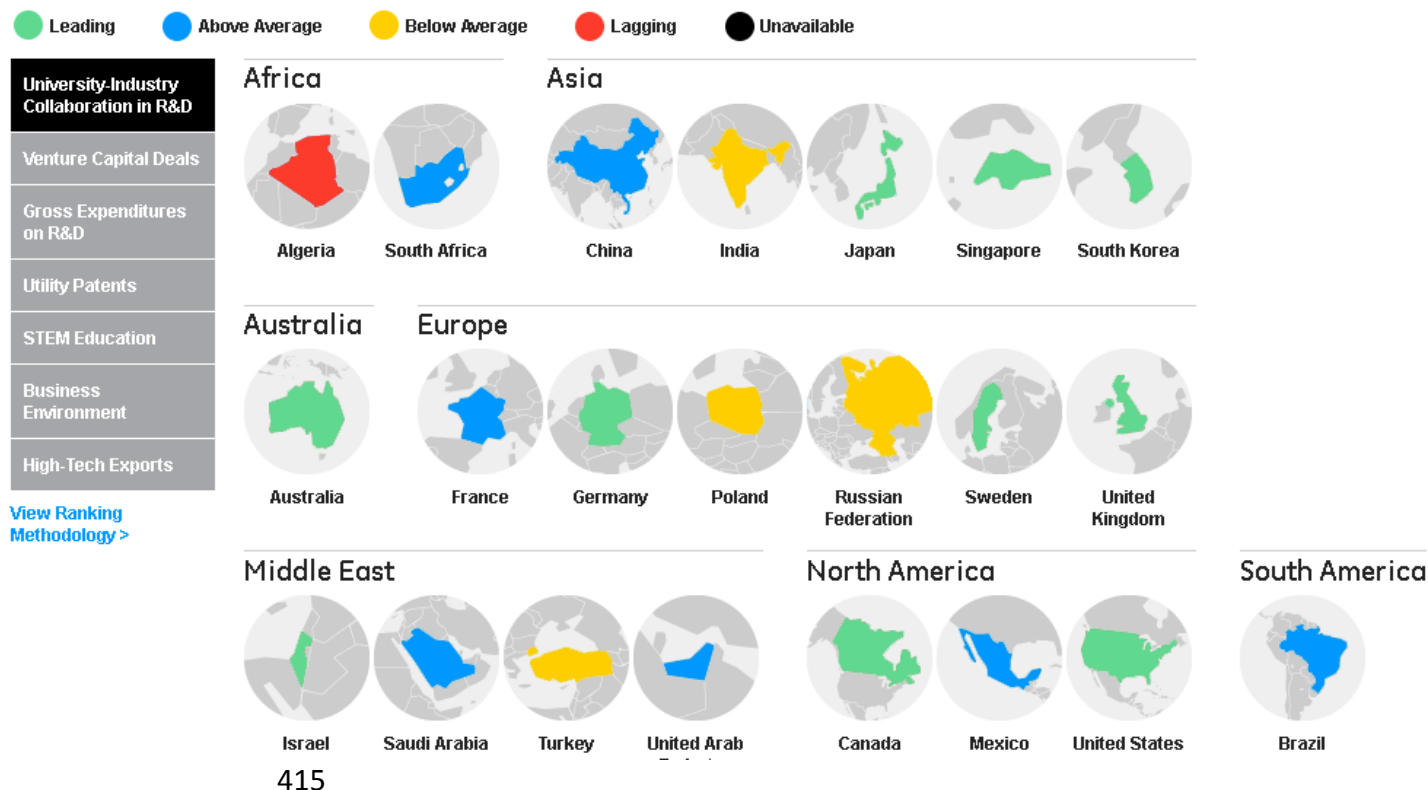
Table 3-82	303
LED Hydroponics BudBooster	303
Table 3-83	304
LEDHydroponics Grow Light Comparison Chart	304
Figure 3-84	304
LEDHydroponics Super Helios 6 Professional Grow Lights	304
Figure 3-85	306
LEDHydroponics Super Helios 6 Grow Lights	307
Figure 3-86	308
LEDHydroponics.co.uk LEDbud Used for Automazar Plants Grow Lights	308
Figure 3-87	308
LEDHydroponics.co.uk Quantum Grow Lights for Vegetation	308
Figure 3-88	309
Quantum Grow Lights for Vegetation	309
Figure 3-89	312
Quantum LED Light Absorption	312
Figure 3-90	314
LEDHydroponics LED Grow Lights	314
Table 3-91	315
Quantum LED Grow Light Models	315
Figure 3-92	319
ValoyaTube Grow Lights	319
Figure 3-93	321
Valoya LED Gtrow Light Spectra	321
Figure 3-94	329
Illumitex NeoSol DS Grow Light	329
Table 3-95	330

NeoSol DS grow light Details	330
Figure 3-96	333
Solid Apollo LED Grow Lights Tuned to Optimize Plant Growth with Red and Blue Light	333
Figure 3-97	334
Solid Apollo LED Grow Lights	334
Figure 3-98	339
Novagant LEDs Allow 1000 Combinations of Different Color and Intensity Settings	339
Table 4-1	342
Plant Grow Lights for Greenhouses Benefits	342
Figure 4-2	345
Solar Powered LED Grow Lamp Architecture	345
Figure 4-3	350
HEFL Offers Range Of Wavelengths Necessary For Cultivation Of Plants	350
Figure 4-4	353
LumiGrow Targeted Spectral Output	353
Figure 5-1	360
Venture Lighting International Human Eye Response Curve	360
Figure 5-2	361
Venture Lighting / Sunmaster Plant Response Curve	361
Figure 5-3	363
Venture Lighting Efficiencies of Light Sources Used in Plant Growth	363
Figure 5-4	375
Delta Group Data Center Power	375
Figure 5-5	376
Delta Group Data Center Power Infrasuite Components	376
Table 5-6	377

Delta Group InfraSuite Advantages	377
Figure 5-7	378
Delta Group Renewable Energy Solutions	378
Figure 5-8	386
Epistar Management’s Beliefs	386
Figure 5-9	387
Epistar Headquarters	387
Figure 5-10	398
Everlight Electronics Regional Segments	398
Figure 5-11	399
Everlight Electronics Global Locations	399
Figure 5-12	401
Everlight Electronics Products	401
Figure 5-13	403
Fujitsu.Agricultural EcoSystem	403
Figure 5-14	404
Fujitsu Cultivating Low-Potassium Vegetables At Its Own Plant-Factory	404
Figure 5-15	406
Fujitsu Human Centric Innovation	406
Figure 5-16	407
Fujitsu Ecosystem of Smartphone	407
Table 5-17	408
Applications for Fujitsu Smart Phone EcoSystems	408
Figure 5-18	414
GE Scorecard 2014, 2013, 2012	414
GE 2014	415

Scorecard

The Milken Institute prepared the Innovation Scorecard for GE. The 22 markets surveyed were ranked on seven key indicators based on the top 100 countries in the World Economic Forum's Global Competitiveness Report 2011-2012. They were then placed in a quartile (leading, above average, below average, or lagging) based on their performance. To view a full country profile, scroll over a country and click.



[View Ranking Methodology >](#)

Source: Milken Institute.	415
Figure 5-19	425
GE Healthcare Oxygen Humidifier	425
Table 5-20	427
GE Healthcare Oxygen Humidifier	427
Figure 5-21	428
GE Healthcare Air/O2 Blender	428
Table 5-22	452
Hydrofarm One-Stop Solutions	452

Table 523	453
Hydrofarm Locations	453
Table 5-24	455
Hydrofarm Profile	455
Figure 5-25	458
Illumitex Greenhouse and Quantum LED Grow Light	458
Figure 5-26	462
Iwasaki Electric, Ltd New Generation Dimmable High-Bay Fixture	462
Figure 5-27	464
Iwasaki Electric, Ltd Commercial Lighting Examples	464
Figure 5-28	465
Iwasaki Electric, Ltd High Speed Capture Lighting	465
Figure 5-29	466
Iwasaki Electric, Ltd Light Source for Image Operation	466
Figure 5-30	467
Iwasaki Electric, Ltd Halogen Heater	467
Figure 5-31	468
Iwasaki Electric, Ltd Halogen Lamp	468
Figure 5-32	469
Iwasaki Electric, Ltd Insect Repelling Lamp	469
Figure 5-33	470
Iwasaki Electric, Ltd Plant Factory Light For Cultivation	470
Figure 5-34	471
Iwasaki Electric, Ltd Light Source for Image Processing	471
Figure 5-35	472
Iwasaki Electric, Ltd Infrared LED Board	472
Figure 5-36	473

LED Agricultural Grow Lights, Table of Contents and List of Tables and Figures

Iwasaki Electric, Ltd EYE Black Lamp	473
Table 5-37	480
Nihon Advanced Agri Business Activities	480
Figure 5-38	485
Study of Nano Materials: Hiromi Nakano in Toyohashi Tech's Cooperative Research Facility Center	485
Figure 5-39	490
Opto-LED Technology Company Product Ranking	490
Figure 5-40	491
Opto-LED Technology Sales by Region	491
Figure 5-41	492
Opto-LED Technology System Products Sales by Region	492
Figure 5-42	493
Opto-LED Technology Grow Light Crops, Peanut, Herb, Pumpkin, and Tomato	493
Figure 5-43	494
Opto-LED Technology Company Profile	494
Figure 5-44	495
Opto-LED Technology Main Products	495
Figure 5-45	496
Opto-LED Technology Main Suppliers of LED Epi Wafers	496
Figure 5-46	500

Philips Global Presence

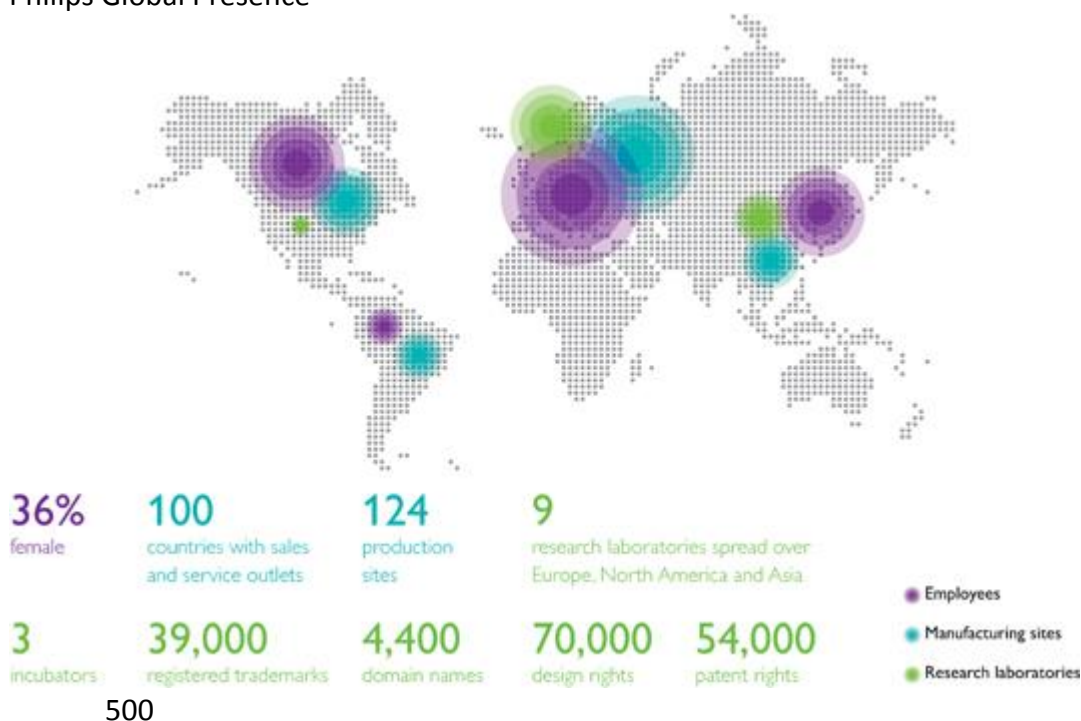


Figure 5-47	503
Philips Global Trends And Challenges	503
Table 5-48	506
Philips Positions To Simplify Global Healthcare Delivery For The Long Term	506
Table 5-49	507
Philips Healthcare Delivery Product Positioning	507
Figure 5-50	509
Philips Delivering Margin Improvement and Decreasing Manufacturing Overhead	509
Figure 5-51	510
Philips Healthcare Information Systems Market Shares	510
Figure 5-52	514
Rambridge Brands	514
Figure 5-53	516

Solarmax HPS Lamps	516
Figure 5-54	517
SolarMax™ HPS Lamps Radiation From The "Red" Portion Of The Spectrum	517
Figure 5-55	519
Sunleaves Product Stacks	519
Figure 5-56	524
Syhdee Employee Team	524
Figure 5-57	525
Syhdee Production Capability	525
Figure 5-58	527
Syhdee Manufactory Industrial Park	527
Figure 5-59	528
Syhdee Manufacturing	528
Table 5-60	529
Syhdee Profile	529