SOL N SOL

SMART FARM Top Lighting

Faster Growth More Harvest More Quality

SOL 바로가기

GigaTera® beyond light by KMW

GigaTera Lighting is an subsidiary company of KOSDOQ listed Korean company called KMW Inc. GigaTera Lighting is the only sports lighting company in Korea that develops/manufactures sports LED lighting based on KMW communication equipment's heat dissipation technology and quality standards for more than 30 years and exports Worldwide including US and Europe.

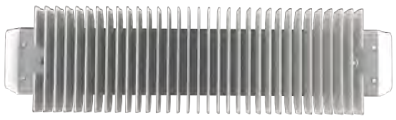
Based on 30 years of communication equipment / 10 years of high-power LED lighting technology and cloud control, GigaTera has released **"GIGATERA SOLNSOL"** in 2023 which is an a plant growth light for smart farms.

GigaTera will become a global leader in carbon neutrality and ESG management by conducting sales, installation, and operation of LED lighting around the world in order to save energy.

Smart Farm Top Lighting

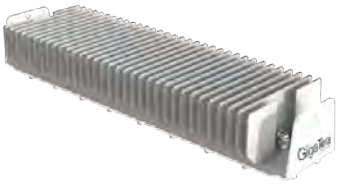
GigaTera SOLNSOL is a high power top lighting with natural convection heat dissipation structure and replaces two existing HPS 1000W lights. It is a structured to be installed on top of the greenhouse and provides additional light to crops along with the natural light. In particular, it improves growth speed and productivity by supporting light activity of crops even in situations where there is insufficient sunlight such as in winter or cloudy weather.

Top View

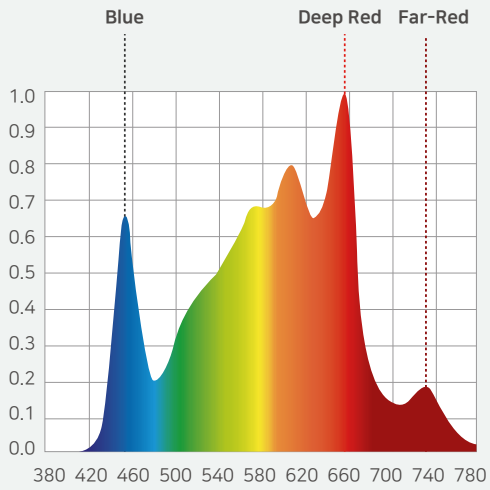


Bottom View

Rear View



Full Spectrum



※ Various spectrums are provided according to crops.

Quality / Durability
Waterproof grade – IP66
Warranty period of
3 years
Natural convection
heat dissipation structure

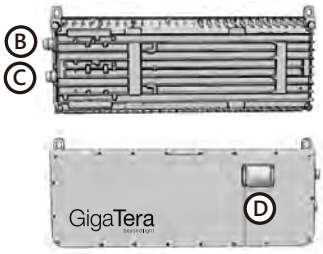
Photosynthesis
Optimal combination of
LED wavelengths to suit
the growth stage and
needs of crops

Energy Saving
More than 50~70%
savings compared to
conventional HPS lighting

High efficiency
2,000 ~ 2,500 umol/s
High energy efficiency

[SOLNSOL]

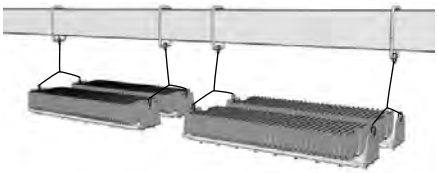
[SMPS-1600]



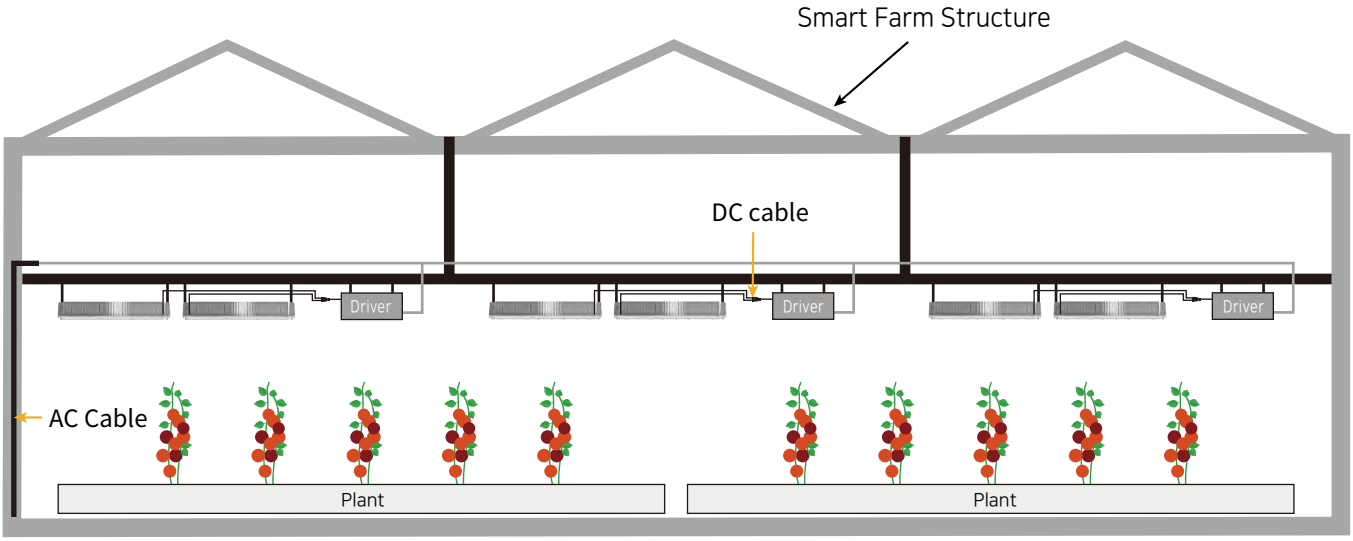
- (A) DC Connector
- (B) DC Connector
- (C) AC Connector
- (D) Node

Type 1 GT-SNS-S1600

Type 2 GT-SNS-W1600



Installation Example

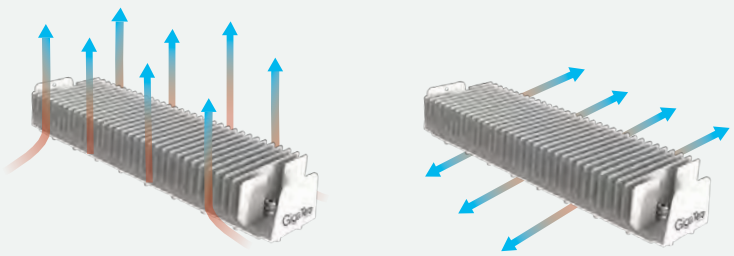


- Specialized in plant growth lighting for smart farms, various scheduling functions and control according to DLI are possible.
- It is possible to automatically control the brightness according to the amount of sunlight through the sensor for each light.
- Remote control and status monitoring of the most appropriate PPFD for each crop and growth period is possible through the automatic dimming function.
- Wireless communication makes installation easy, cost-effective, and can be set up and controlled freely by the entire group or by group.
- Provides a service that can be conveniently and quickly controlled from anywhere in the world regardless of location.

"Able to integrate with other systems"

"Heat dissipation structure"

Product designed with an unrivaled heat dissipation technology to differentiate and maximize the usability.



Heat dissipation upwards

Heat dissipation side ways

"Acquired more than 100 domestic and overseas intellectual property rights"


특허증
CERTIFICATE OF PATENT
특 허 제 10-1825181 호
출원번호 제 10-2016-0056388 호
출원일 2016년 05월 09일
등록일 2018년 01월 29일
위의 발명은 「특허법」에 따라 특허등록원부에 등록되었음을 증명합니다.
This is to certify that, in accordance with the Patent Act, a patent for the invention has been registered at the Korean Intellectual Property Office.
2018년 01월 29일
특허청장
COMMISSIONER, KOREAN INTELLECTUAL PROPERTY OFFICE
특허청 Korean Intellectual Property Office


특허증
CERTIFICATE OF PATENT
특 허 제 10-1836347 호
출원번호 제 10-2011-0031388 호
출원일 2011년 04월 05일
등록일 2018년 03월 02일
위의 발명은 「특허법」에 따라 특허등록원부에 등록되었음을 증명합니다.
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2018년 03월 02일
특허청장
COMMISSIONER, KOREAN INTELLECTUAL PROPERTY OFFICE
특허청 Korean Intellectual Property Office


특허증
CERTIFICATE OF PATENT
특 허 제 10-1888685 호
출원번호 제 10-2011-0091932 호
출원일 2011년 09월 09일
등록일 2018년 08월 08일
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COMMISSIONER, KOREAN INTELLECTUAL PROPERTY OFFICE
특허청 Korean Intellectual Property Office

Reliability Testing Equipment

Has own reliability facilities

Mirror Equipment

Salt Spray Tester

High Temperature Chamber

Integrating Sphere

Drop Tester

Thermo-hygrostat

Thermal Shock Tester

High Temperature Tester

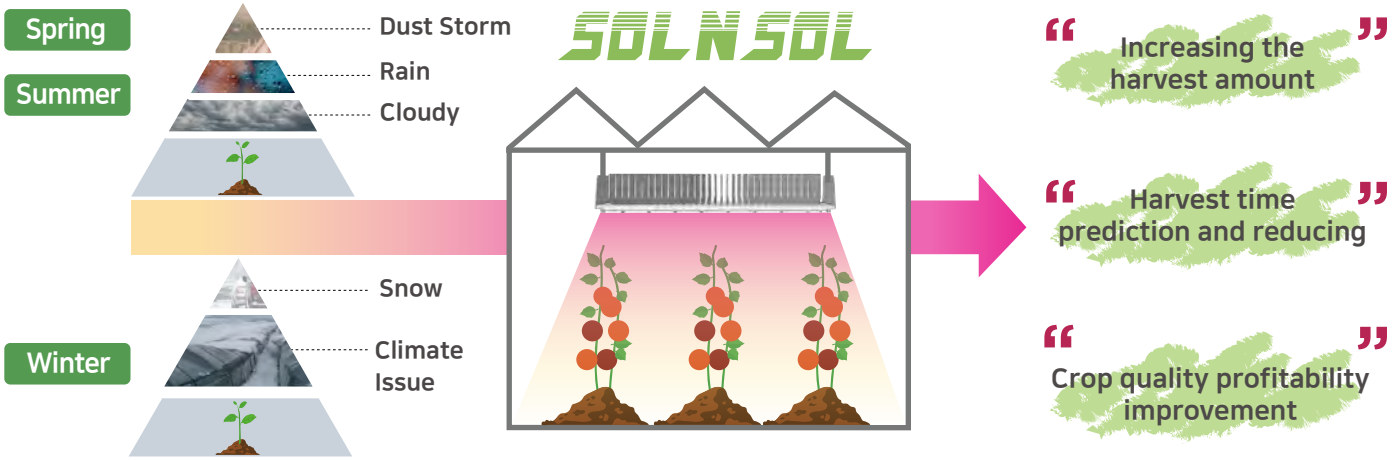
Dust Tester

Vibration Tester

Rain Tester

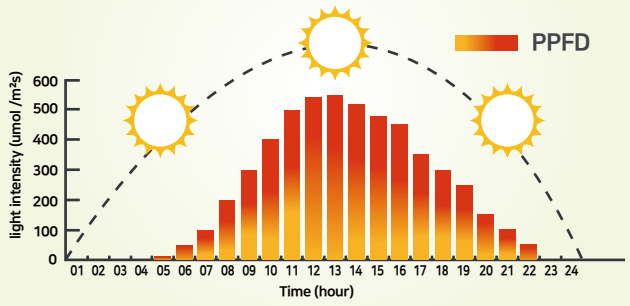
Cryotherapy Chamber

GigaTera LED Economics



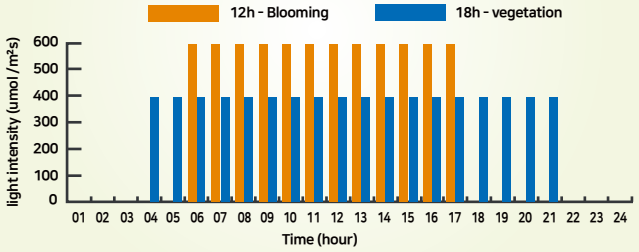
DLI-Daily Light integral

DLI - Curve line specimen of one day (natural sunlight)

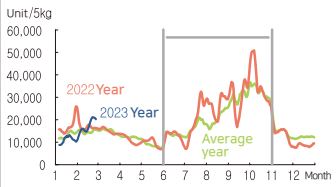


Constant DLI with LED 12h /18h period

DLI, Daily Light Integral -12 / 18h illumination LED

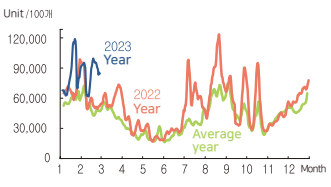


[Tomato wholesale price trend]



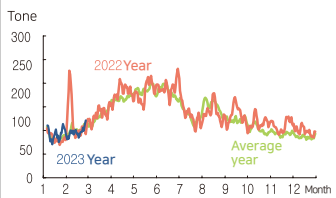
[Strawberry wholesale price trend]

[Cucumber wholesale price trend]



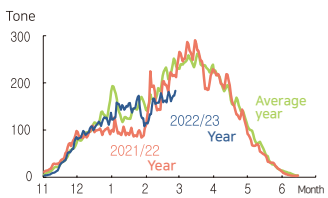
[Paprika wholesale price trend]

[Tomato production specimen]



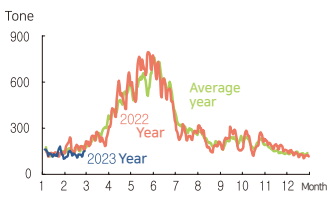
Note: Daily data is a five-day moving average
Average of the average year is the largest and least excluded data from 2018 to 2022

[Strawberry production specimen]



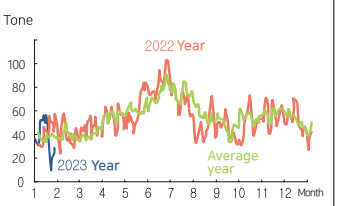
Note: Daily data is a five-day moving average
Average of the average year excluding the largest and minimum among the last five-year data

[Cucumber production specimen]



Note: Daily data is a five-day moving average
Average of the average year excluding the maximum and minimum among 2018-2022 data

[Paprika production specimen]



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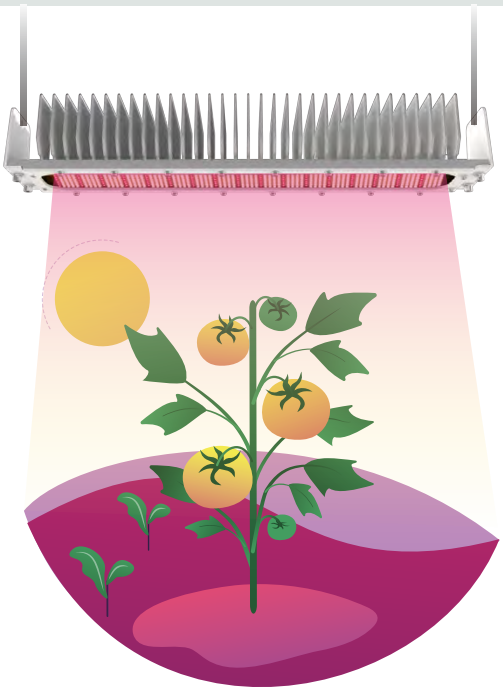
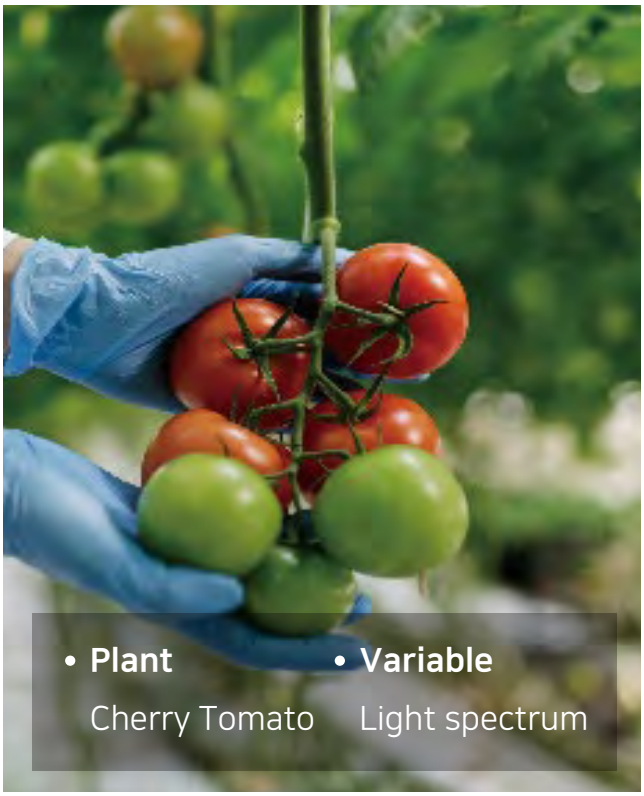


Why plant growth light is needed?

Plants need consistent sunlight throughout the year.
However, due to the effects of seasonal and climate change,
sunlight is not consistent. For successful cultivation,
it is important to provide abundant light in the greenhouse.
HPS supplemental lighting is not suitable because
it has an less efficient and has shorter lifespan
compare to the LED lighting.

Test progress (49 days)

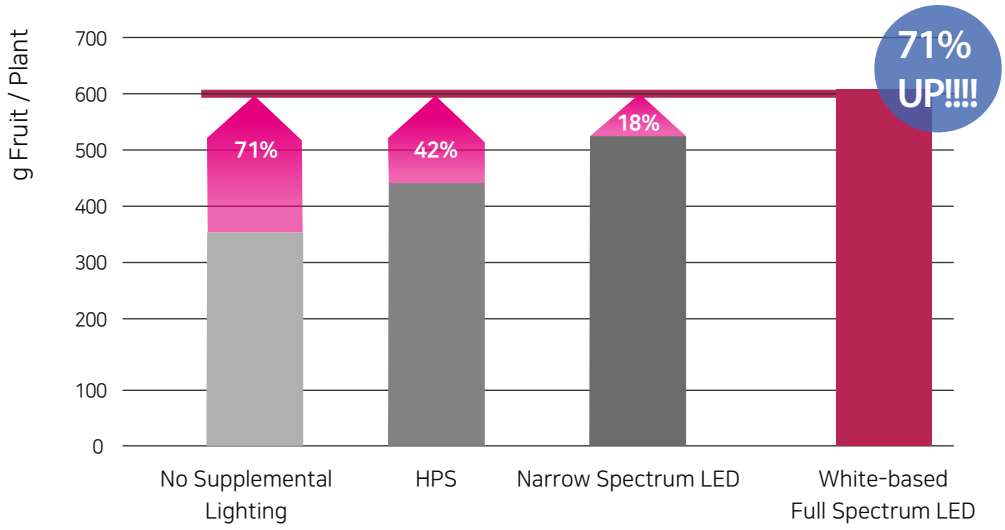
A controlled experiment was conducted to analyze the effects of different types
of supplemental lightingon plant growth. In a commonly used greenhouse environment,
high-pressure sodium (HPS), narrow-spectrum LED, and white-based full-spectrum LED were used on
cherry tomatoes under a light source, and the study was conducted to see how well the plants grow in each
specific type of lighting environment under the same electrical energy.

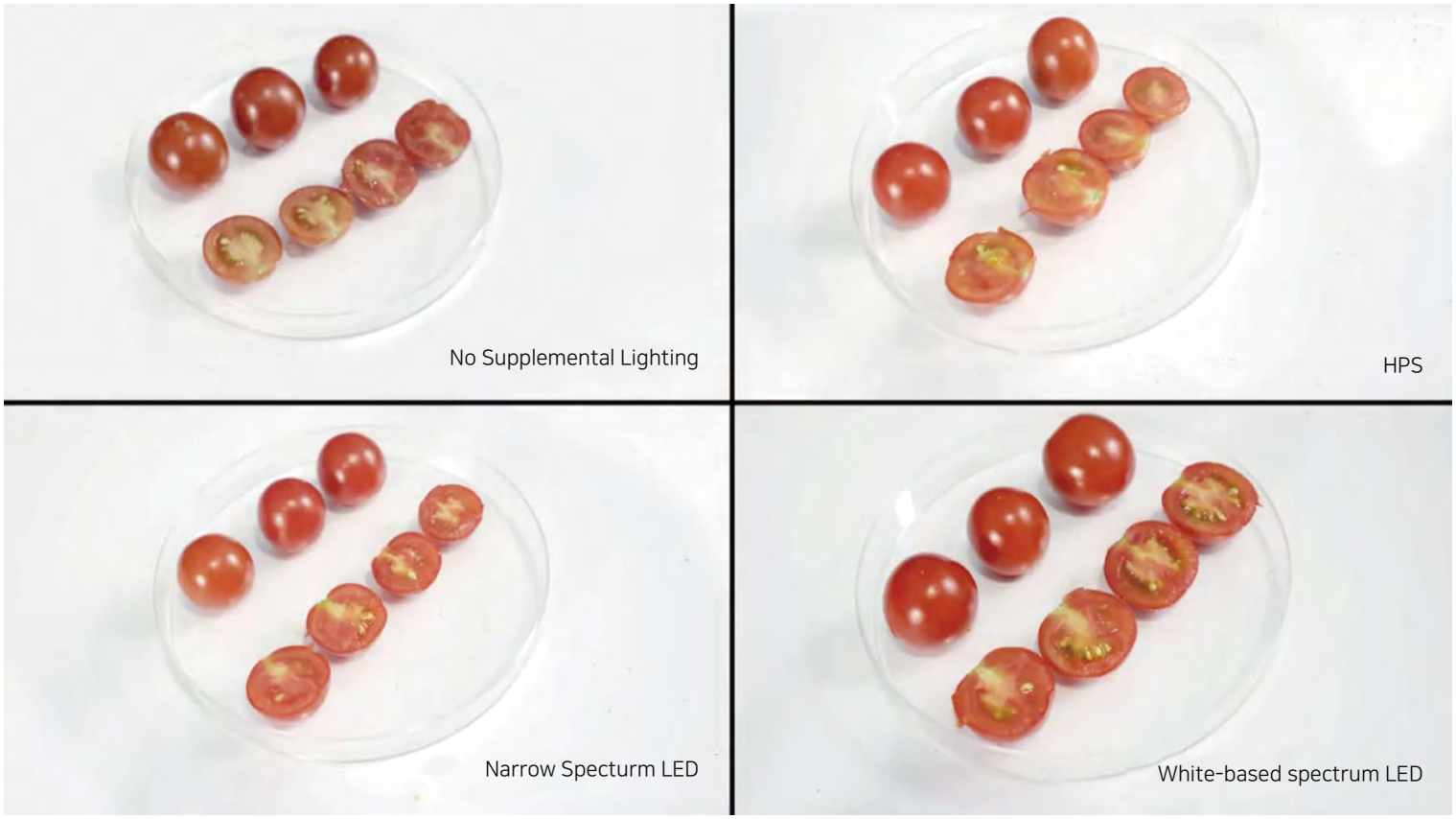


<Source: SAMSUNG LED YouTube Video Materials>

Test results

The crops under the white base full spectrum LED has shown the result of 71% improvement compare to the crops where no lights were used. Furthermore, it has also shown the improvement by 42% over the sodium HPS and by 18% over the narrow spectrum LED.



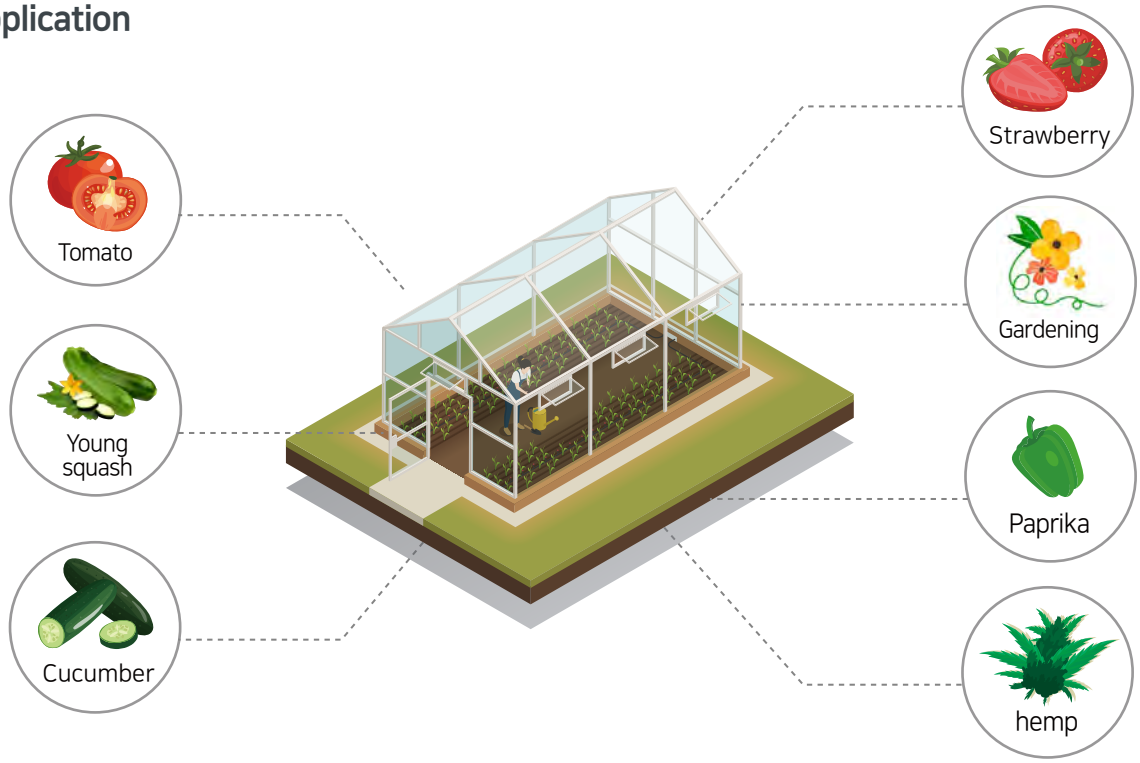


<Source: SAMSUNG LED YouTube Video Materials>

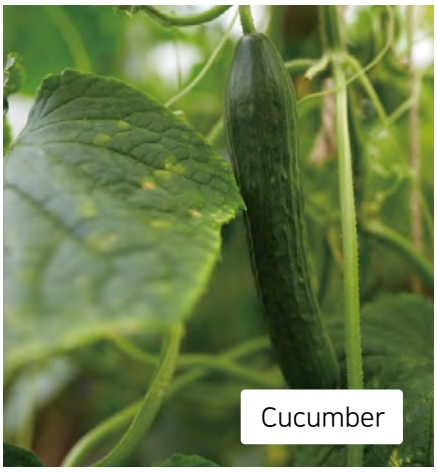
"SOLNSOL is a cost-effective and efficient solution that can maximize the agricultural productivity."

Example installation application

Application



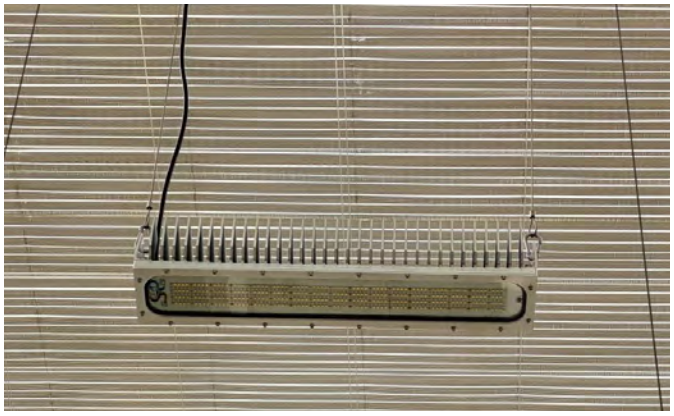
Smart Farm / Greenhouse Cultivation



Example of pilot installation (Strawberry)

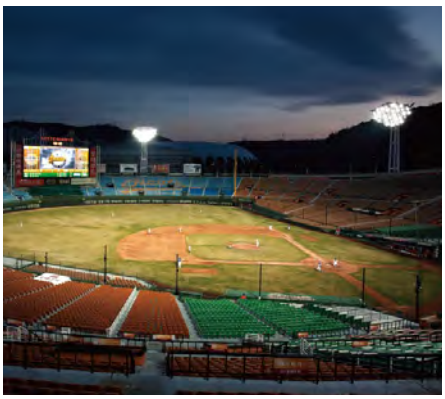
Before

After

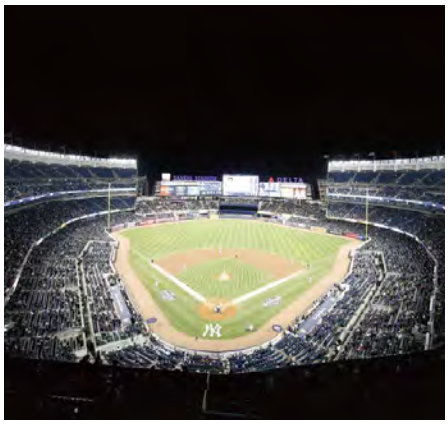


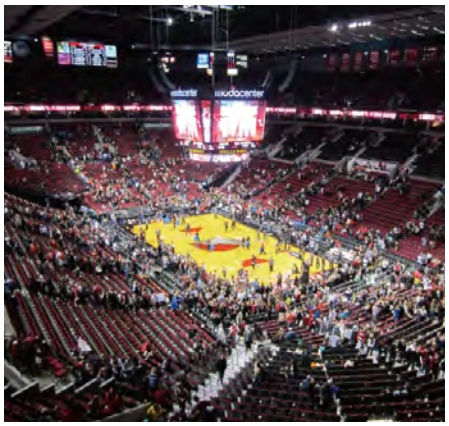
Domestic

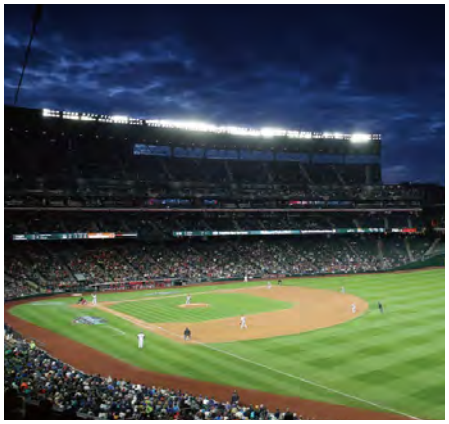




International





SOLNSOL

GigaTera®

beyond light

[Contact]

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