

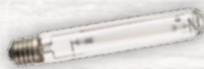




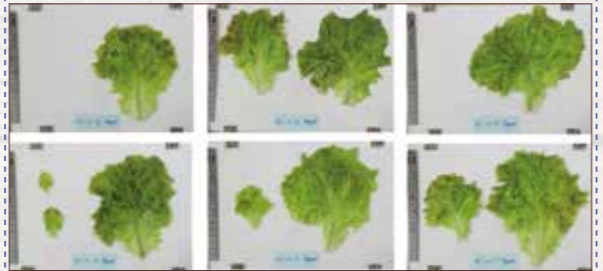



**PRODUCT FEATURE**  
ONE 4 ALL | HORTICULTURAL LEDS FIXTURES

one4all

**HORTICULTURAL**  
LEDS FIXTURES

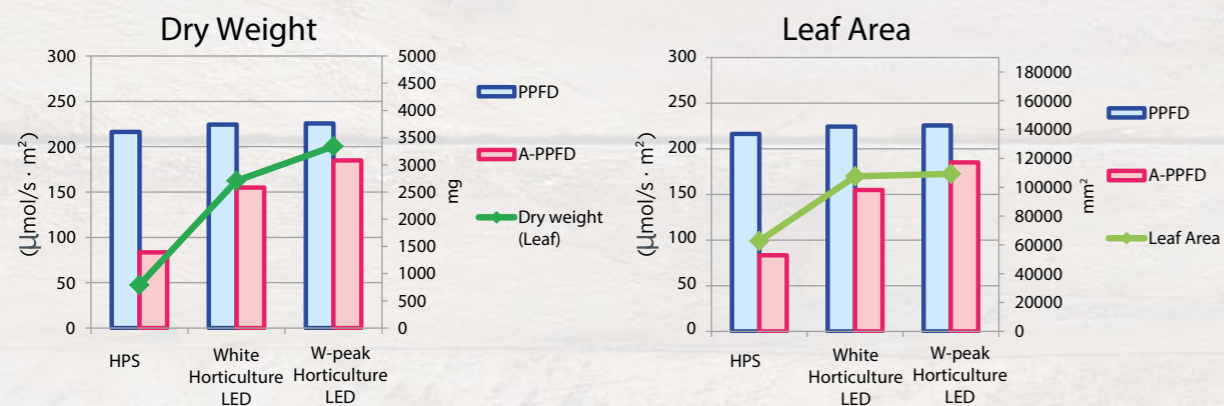


**RESULT FOR PLANT GROWING**

LIGHT SOURCE	DAY 21	DAY 35	SPAD
<b>HPS lamp</b> 			7.0
<b>White PKG</b> 			15.0
<b>RB PKG</b> 			16.5

\*SPAD - Index value for Chlorophyll which is developed by Ministry of Agriculture, Forestry and Fisheries of Japan. It is measured by KNICA MINOLTA's chlorophyll meter (SPAD -502Plus).

**CORRELATION OF LIGHT AND PLANT GROWING**



**CONCLUSION**

Reached twice better growing than HPS.  
Fond out those growing related with mount of Active-PPF.



UNIK 90 W / 120W

XTREAM 200W / 300W

**HORTICULTURAL LEDS FIXTURES AND LED GROW LIGHT**

All plants have the same needs to grow : including nutrients, water, air, and a suitable temperature but require a different combination of factors to grow most efficiently.

**ONE 4 ALL Horticultural LEDs fixtures support the growing process through augmented light waves designed to enhance photosynthesis to increase agricultural output.**

**We can offer a vaste range of Led luminaires to customize grow lighting projects.**

ONE 4 ALL is committed to deliver high-quality leading Led lighting products and pay attention to the new trends in the industry to be always innovative, pioneering new technologies and design solutions.

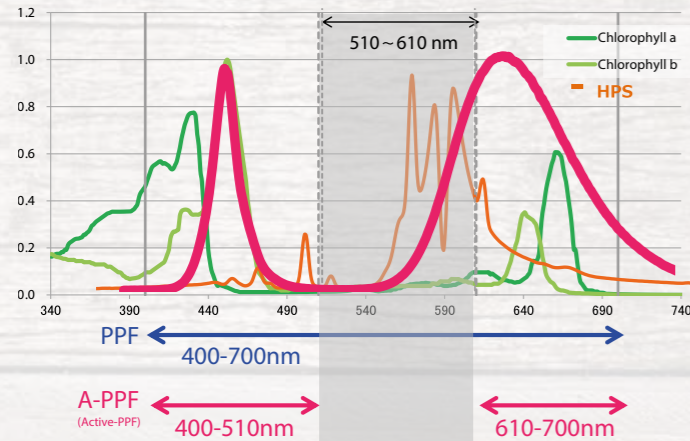
# PRODUCT FEATURE

## ONE 4 ALL | HORTICULTURAL LEDS FIXTURES

# PRATICAL VALIDATION TEST

## ONE 4 ALL | HORTICULTURAL LEDS FIXTURES

### CHLOROPHYLL ABSORPTION SPECTRUM AND PLANT GROWING UNIT



**HPS**  
lamp spectrum is not effective for plantgrowing.

**ACTIVE PPF**  
PPF without PF values of 510-610nm (No absorption area). It's not general concept.

### LONG LIFE TIME

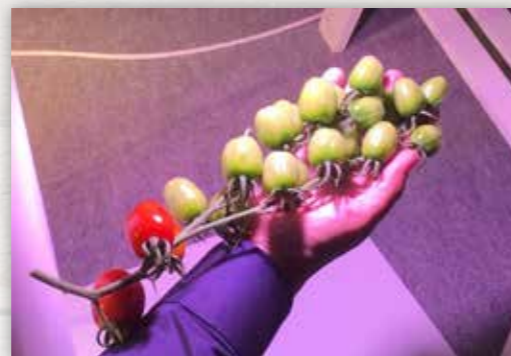
High heat dissipation package design and Phosphor Cob convert technology allow for high durability for life and stability of glowing effectiveness.

# L90 70,000 h

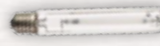


Cover the green house life time, no need for replacement the luminaire.

### SUITABLE LIGHT FOR PLANT GROWING

Offer the good light spectrum for plant by spectrum tuning technology. White horticulture color for good plant growing and good for human to observe.



### COMPARE HPS AND ONE4ALL LED FIXTURES FOR PLANT GROWING EFFECT AT SAME PPFD CONDITION.

LIGHT SOURCE	LIGHT CONDITION	
	PPFD (400-700nm) ( $\mu\text{mol/s} \cdot \text{m}^2$ )	A-PPFD (400-510, 610-700nm) ( $\mu\text{mol/s} \cdot \text{m}^2$ )
HPS lamp 	216	83
White PKG 	224	155
RB PKG 	226	185

TEST PLANT: RED LEAF LETTUCE TEST ENVIRONMENT: UNIVERSITY OF YAMANASHI, AT PLANT EXPERIMENT UNIT

### TEST PLOT MEASUREMENT

- |              |                  |
|--------------|------------------|
| 1. CE White  | Measurement item |
| 2. CE W-peak | 1. Leaf Area     |
| 3. HPS       | 2. Dry weight    |

(SAMPLING INFORMATION)

### MEASUREMENT 1,2

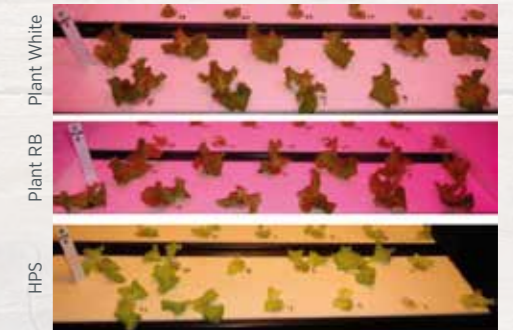
Measurement item  
Date: Day21, Day28, Day35  
Number: 4 heads  $\times$  3 times  
\*Total 12heads/area

### CONDITION

All test plot is at same condition.

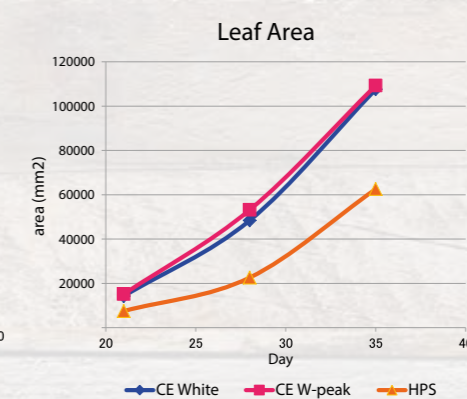
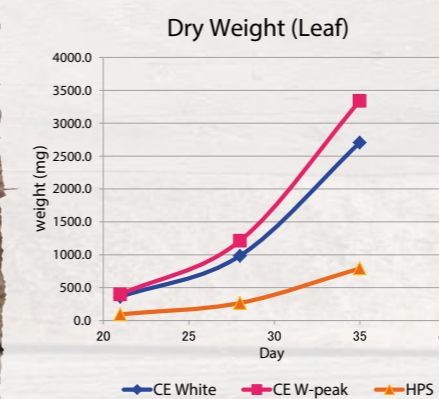
Temperature	22°
Humidity	50~70%
Light timing	ON/OFF 12hours
Culture pH	pH 5.5-6.0
Culture EC	EC 1.5-2.0mS/cm
PPFD	230 $\mu\text{mol/sec} \cdot \text{m}^2$

\*Irradiance variability is within 20%



### RESULT FOR PLANT GROWING

Date for 21, 28, 35 days after planting



**ONE4ALL LED FIXTURE**  
is much effective for plant growing than HPS