



Tastier Lettuce and Herbs

Increase quality and biomass

Especially designed for leafy greens, the AP673 spectrum provides an energy efficient way of producing high quality products with excellent biomass.

In addition to good biomass, qualitative factors like taste, color and nutritional values are important when producing lettuce, herbs and micro greens. Production of plant chemical compounds (e.g. anthocyanins and other phenolics) affecting the aforementioned factors, can be enhanced with light quality. Valoya lights are capable of improving plant coloring and taste, and increasing phenolics concentration.



Benefits of using Valoya LEDs

More biomass

AP673 showed consistently more fresh weight than HPS for all tested plant varieties. Herbs grown under the AP673 spectrum had on the average almost 15% more fresh weight than those grown under HPS. Rockets were on the average 12%, micro greens 46% and lettuces 33% heavier with AP673 than with HPS while retaining a beautiful shape. Some varieties showed very high increase in biomass e.g. watercress (83%) and ice lettuce *Frillice* (100%).

Better visual appearance and taste

While achieving a large biomass, plants were still beautifully compact under AP673 compared to HPS plants which tended to stretch. The color of plants grown under AP673 was stronger due to higher chlorophyll absorbance in all plant varieties. E.g. leaf lettuce *Multiblond* showed over 100% more chlorophyll absorbance under AP673 compared to plants grown under HPS lights.

Measurements of nutritional values showed less nitrates and higher phenolics absorbance with AP673 compared to HPS e.g. ice lettuce *Frillice* had 14% less nitrates and green basil 200% more phenolics under AP673 compared to HPS.

Cost effective and visually pleasant cultivation

Valoya LED lights use significantly less energy than traditional HPS or incandescent lighting. Valoya fixtures have a robust, functional design ensuring a long lifespan in demanding greenhouse conditions.

As AP673 is a continuous wide spectrum, the light color appears peach, allowing very good working conditions in contrast to traditional red/blue LED lights.

Test specifications

Plant varieties	Multiple lettuce and herb varieties
Valoya spectrum	Valoya AP673 installed in Valoya B100 light
Reference light	High Pressure Sodium (400 W, Son-T)
Intensity at plant level	125 $\mu\text{mol}/\text{m}^2/\text{s}^{-1}$
Photoperiod	18 hours of light, 6 hours of dark
Temperature	Day 21.5 °C, night 18 °C
Growth substrate	Peat for lettuce (Kekkilä White 620), pH 6.0
Fertilizer Type	Kekkilä Vihannes-Superex and calcium nitrate
Planting method	Seeds



Luminaires used: Valoya B100 with AP673 spectrum



More information

Research Manager: Dr Titta Kotilainen, +358 50 568 0398
titta.kotilainen@valoya.com