Summary

CUCUMBER TRIAL

climalux

Date: April 2021
Cultivation: Cucumber
Location: World Horti Center
Researcher: HortiTech

Made in Holland

In the World Horti Center (WHC) in Naaldwijk, a 76.8 m² department was used to test for 26 weeks (start week 41.2020) how the cucumber crop responds to the Climalux CLX V1000 lighting.

On October 8, 2020, 192 cucumber plants of the Skyson (RijkZwaan) variety were planted in department 7 at Vertify, location World Horti Center in Naaldwijk. 12 Climalux CLX V1000 lamps have been installed in the department, with a maximum total power of 12,000 watts, a maximum of 1000 watts per lamp and Power Supply Unit (maximum, because the lamp is dimmable). The lamps are suspended in a grid of 3.2 meters between the rows and 2.15 meters between the lamps. During the cultivation, support was provided by growers Jan Reijm and Kees Hendriks. The last cucumber was harvested on April 1, after which the cultivation ended.

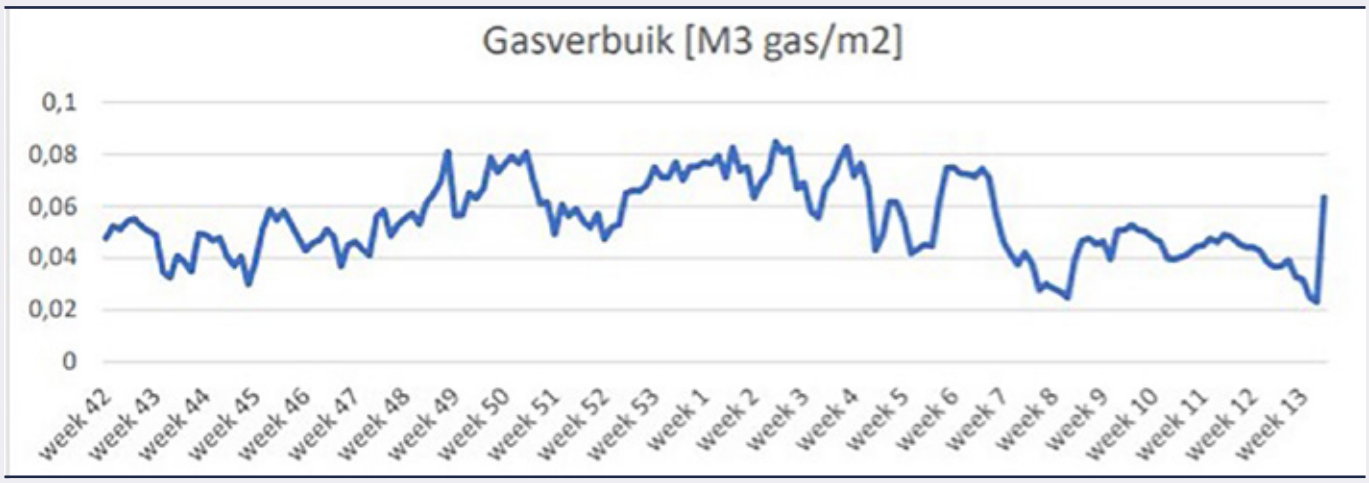
The trial has shown that a good harvest result can be achieved during a winter period with the Climalux CLX V1000.

The use of the full light spectrum (380-780nm, in principle reasonably comparable to sunlight) has shown that the crop develops better than with traditional lighting with SON-T.

Energy

The heating network of the greenhouse was used to heat the cultivation. This heating network consisted of 2 nets, the bottom net (the pipe rail) and the top net (the growth tube). Until the middle of week 4 2021 only the bottom net was used, after week 4 2021 only the top net was used.

The daily average 24-hour temperature inside and average daily 24-hour temperature outside was measured via the climate computer. The graph below shows how much m³ of gas is consumed per m² during cultivation. A total of 9.41m³ of gas per m² was used during cultivation (assuming a high calorific gas value of 35.17 MJ/m³). The pipe input has always been low because there was never any need to heat against mold.



Gas consumption per square meter per week.

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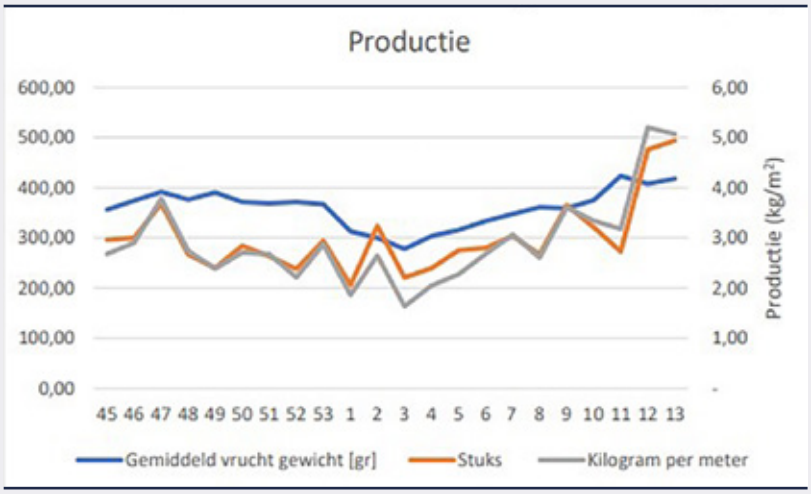
Production

In production it is clear that it is not so much the fruit weight (blue line) but the number of pieces (orange line) that makes the difference. The graph shows the fruit weight and the number of pieces in the left vertical axis and the production in kilograms/m² in the right vertical axis.



Production per week.

CONCLUSION

In summary, the following can be concluded f rom the trial:

- **It is possible to grow better under the full LED light installation;**
- **Cultivation of a resilient crop with a high fruit yield;**
- **Significantly lower gas consumption due to better utilization of lamp heat;**
- **An approximately constant energy consumption;**
- **A better microclimate through better vertical air circulation, reducing diseases.**
- **Better control over the amount of light on the crop in conjunction with the light from outside the greenhouse;**
- **Remote monitoring of the system making maintenance quite easy.**

Additional information

Would you like to know more about this cucumber trial? Please contact Niels Damen, operational manager. He can be reached directly via n.damen@climalux.nu or +31 6 18 67 81 29.

Made in Holland

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