Artificial Light Improves Yield of Tomato under Hi-Tech Glasshouse

Background

Nowadays, it is very prevalent to use artificial and supplemental light in greenhouse to maximize production. Optimal control of greenhouse lighting is one of the key techniques in digital agriculture since light is the most important source of energy for plant photosynthesis and a vital signal for plant growth and development. High-pressure sodium (HPS) lamps are used in commercial greenhouses as a supplemental light source above plants resulting in significant radiant heat emission (infrared) in the direct environment.

Objectives

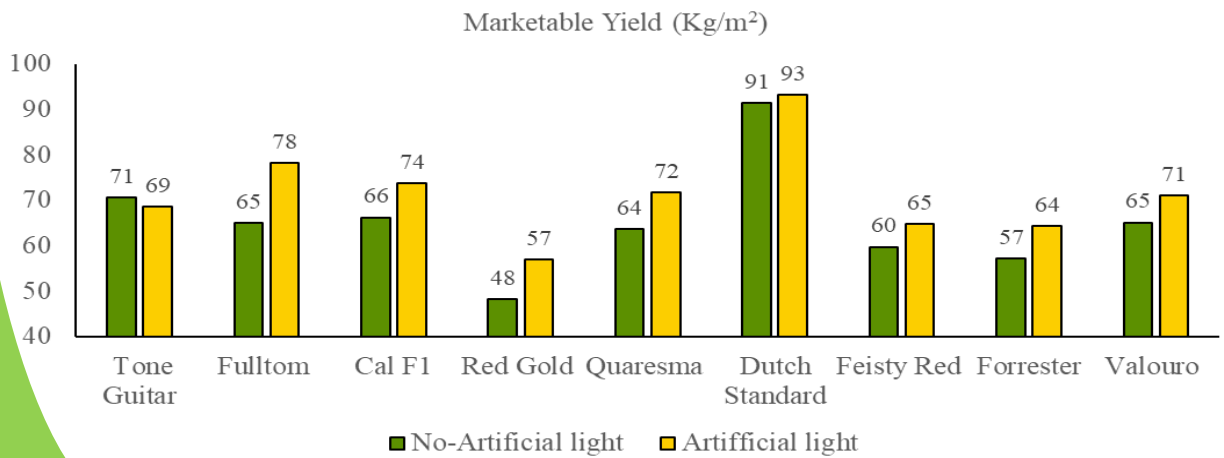
This study aimed to optimize efficiency of Hi-Tech glasshouse under Saudi Arabia climate condition and enhance yield of different tomato cultivars using supplementary light application under Hi-Tech glasshouse.

Treatments

- Nine different tomato cultivars.
- High-pressure sodium lamps (PAR = 210 µmol .m^{-2}. s^{-1}) for 6 hrs (12:00- 6:00 am).

Result

Artificial Light increased marketable yield of tomato from 10-20% based on cultivar.



Conclusion

- ❖ Artificial light improved over all tomato production.
- ❖ Most of cultivars responded positively for artificial light technology.

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