

Tomatoes grown with light-emitting diodes or high-pressure sodium supplemental lights have similar fruit-quality attributes

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Greenhouse growers have been gradually adopting light emitting diodes (LEDs) as an alternative to high pressure sodium (HPS) fixtures. Long lifespans and high energy conversion ratios are among the main reasons why growers are attracted to LEDs, but many are left wondering how LEDs might affect the taste of their produce.

A recent study from Purdue University published in the October 2015 issue of HortScience examined how LEDs affected the flavor and composition of tomato fruits grown in a production setup. In three separate 4-5 month studies, the researchers compared greenhouse tomatoes supplemented with LEDs to those supplemented with HPS lamps as well as unsupplemented controls. Tomatoes were measured for color, sugar, and acidity while a consumer sensory panelists rated the fruits for attributes like color, aroma, texture, sweetness, acidity, aftertaste, and overall approval. Each study revealed that supplemental lighting had minor effects on fruit composition. However, sensory panelists indicated that tomatoes from all treatments tasted equally as good.

The findings from this study indicate that LEDs, used at the same wavelengths and intensities, will not negatively impact the quality of greenhouse tomatoes. With the potential energy savings associated with LEDs, greenhouse tomato growers using similar lighting systems can produce the same wholesome tomatoes that consumers want.



Taken by Rob Eddy

The complete work is available from ASHS for a fee.
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The curtains between rows were opened in order to show the entire experimental setup. Normally, curtains separate the rows to avoid "light pollution."

