

LED lights help save energy for wintertime greenhouse tomatoes

LED lights have long been touted for their energy savings in commercial and industry uses. But the lighting also can cut costs in winter greenhouse tomato production without sacrificing yields, according to a Purdue University study.

Growing greenhouse tomatoes in cold climates during the weather not only requires heating, but it also requires lighting to make up for the shorter, frequently overcast days, according to a news release. Cary Mitchell, a professor of horticulture, and doctoral student Celina Gomez experimented with light-emitting diodes, or LEDs, which are cooler and require far less energy than traditional high-pressure sodium lamps used in greenhouses.

Their goal is to develop a system where local growers in Purdue's home state of Indiana could compete price-wise with tomatoes shipped in from faraway warmer locales. They compared tomato yields and fruit size from plants grown under traditional conditions with those grown under LED towers.

Yields and fruit numbers were comparable, but the LEDs used about 75 percent less energy than traditional lighting.

Because LEDs run much cooler, they could be placed closer and along the sides of plants, lighting not only the top but also the understory.

High-pressure sodium lamps do account for about 15 percent to 25 percent of the heat needed to warm greenhouses.

"That's a very expensive way to heat a greenhouse through lighting," Mitchell said in the release. The two plan to conduct studies comparing the flavor of LED-grown tomatoes with traditionally grown tomatoes.