

# Light gene boosts tomato yields by a fifth

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The Tomato, (*Lycopersicon lycopersicum*) flowering, associated with a young, developing fruit. Credit: Earth100/Wikipedia

Scientists on Tuesday said they had found a gene in wild tomatoes that enables farmed tomato plants to be grown 24 hours a day under natural and artificial light, boosting yields by up to 20 percent.

Back in the 1920s, experiments showed that modern [tomato plants](#) suffer potentially fatal damage to their leaves when grown under continuous light.

As a result, commercial tomatoes have to be grown under a day-night cycle in which light is limited to around 16 hours a day.

In contrast, other plant species such as peppers, lettuces and roses do not have this problem—they can be grown in continuous light all the time, which is a boon for big factory-style greenhouses.

Researchers at Wageningen University in the Netherlands said they had trawled through the genome of a strain of wild tomato native to South America.

On Chromosome 7, they found a gene called CAB-13, which confers tolerance to continuous light.

The gene was then transferred to modern plants by traditional cross-breeding, rather than genetic engineering, and the hybrid was put to the test, they said.

Plants that were grown 24 hours a day achieved a gain in yield of up to 20 percent compared to those grown for 16 hours in greenhouse conditions, the researchers reported in the journal *Nature Communications*.

So far, there has been no sign of any negative impact on the tomato's taste or shelf life, said lead investigator Aaron Velez-Ramirez.

"It seems that we are just talking of more tomatoes with the same characteristics as those produced under the 16-hour photo period," he said in an email exchange with AFP.

"Some varieties of potato and petunias, which belong to the same family as tomato, are sensitive to continuous light as well. So they could benefit from finding a way to confer on them tolerance to continuous light, but I do not think that it will make economic (sense) to do so."

Many [plant species](#) are tolerant to continuous light, but it only makes financial sense for growers to focus on high-value crops given the cost of lighting, he explained.

"From a scientific point of view, of course, it is always interesting to find why some species can cope with continuous light and some others cannot," added Velez-Ramirez.

"When answering this kind of question, we learn a lot on how plants function and how they adapt to their environment."

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