

The quality of the tomato depends more on temperature than on natural light

March 25 2010

A team from the Basque Institute for Agricultural Research and Development (Neiker-Tecnalia, Spain) has questioned the generally held belief that the quality of tomatoes depends primarily on their exposure to natural light and states that the most determining factor is temperature. The research was drawn up by the Institute's Department of Agricultural Production and Protection and opens up great possibilities for starting new plantations in zones where light intensity is low due to weather conditions.

The findings are of particular interest in geographic zones such as the Cantabrian mountain range in the north of Spain, where there is frequent cloud cover and an average of 140 rainy days per year, and which could be suitable for growing greenhouse tomatoes, despite low levels of solar radiation.

The study evaluated the different indicators for organoleptic (taste and texture) quality and nutritional quality, such as acidity, soluble solids, phenolic compounds, pH and vitamin C content. To this end, the tomato plants were exposed to photosynthetic radiation between 30 and 50% less than the usual for the sunny zones in the south of the Iberian Peninsula, at the same time as studying other [tomato plants](#) undergoing 100% exposure. Cultivation was carried out on soil, in a greenhouse without artificial heating and shaded in a small area so that air currents were able to homogenise the temperature within the plantation.

The results showed that the organoleptic and [nutritional quality](#) was very

similar between the plants exposed to greater [solar radiation](#) and those with less. Another conclusion of the research opens up the possibility of reducing costs of heating, something that researchers in other European countries such as the Netherlands are working on - through the selection of seed varieties that need less energy. According to Mr Patrick Riga, the author of the report, "heating bills can be reduced while obtaining the same quality of tomato"; although, as a disadvantage, yield is less. In Mr Riga's opinion, "growers have to choose between production or quality".

Researchers are now focusing on analysing how much the temperature can be reduced in order to cut down on energy consumption without affecting quality parameters. These findings can also be applied to other kinds of fruit with high nutritional value, such as strawberries, cucumbers, melons and watermelons.

Provided by Elhuyar Fundazioa

Citation: The quality of the tomato depends more on temperature than on natural light (2010, March 25) retrieved 25 June 2024 from <https://phys.org/news/2010-03-quality-tomato-temperature-natural.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.