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## NYP team develops glowing breakthrough for food farming



From left: NYP researchers Chng Joe Hui, Dr Hannah Gardner and Zoey Goh demonstrate how the nano-coated film helps plants grow. Vegetables now can grow better, faster and cheaper with this new innovation. Photo: NANYANG POLYTECHNIC

*Film innovation converts sunlight to red and blue wavelengths, allowing plants to grow faster, bigger*

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BY JEONG HONGBIN  
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**SINGAPORE** — In a potential breakthrough for food farming in Singapore, researchers have found a way to make plants grow bigger and faster.

Researchers from the Nanyang Polytechnic's (NYP) School of Engineering, along with 20 students, have developed a film, based on nanotechnology, that can convert sunlight into red and blue wavelengths, the main types of light that plants need for growth.

Known as Nano Glo-n-Grow, the innovation maximises the use of sunlight without the need for additional electrical power.

The NYP researchers' tests showed that 96 per cent of plants which received light via the nano-coated film showed increased growth. The plants also showed, on average, a 40 per cent increase in leaf area, and a 190 per cent increase in height.

While there are currently methods that use light-emitting diode (LED) lights in greenhouses to help plants grow indoors without sunlight, they are more costly.

For a 1m-by-1m illumination area, the cost of an LED panel, excluding the electricity bill, ranges from S\$80 to S\$130. In contrast, a 1m-by-1m nano-coated film costs less than S\$20.

So far, NYP researchers have conducted only small-scale experiments using Nano Glo-n-Grow.

They expect the product to be on the market for commercial use in about one to two years.

Local glass manufacturer Singapore Safety Glass has expressed interest in the technology.

While Nano Glo-n-Grow has the potential to greatly enhance productivity and efficiency in agriculture, Mrs Ivy Singh-Lim, 68, owner of Bollywood Veggies farm in Kranji, has reservations about the innovation.

Describing herself as "very old-fashioned", Mrs Singh-Lim said she wondered how the technology would affect the "freshness and health" of the plants.

However, NYP senior lecturer Dr Hannah Gardner gave the assurance that Nano Glo-n-Grow would not lead to plants developing any defects.

"(The film) is not in the plants or on the plants. It's placed only on the outside of the greenhouses, so it does not directly affect the plants," she said.

Chng Jeo Hui, a final-year student pursuing the Diploma in Nanotechnology and Materials Science, was glad to have been part of the research, even though he and the other students did not know what to expect at the start of the project.

"Seeing the plants grow rapidly was very rewarding," said the 20-year-old. "I could feel the sense of success."

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