

## SCIENTISTS BOOST PLANT YIELD BY 40%

Relevant for: Science & Technology | Topic: Biotechnology, Genetics & Health related developments

Scientists use genetic hack to create tobacco plants that are 40% bigger. | Photo Credit: [Reuters](#)

For years, researchers at the University of Illinois have been trying to find out whether it is possible to genetically modify a crop to boost its growth.

In results published in *Science* on Thursday, they confirmed they had been successful in making tobacco plants 40% bigger thanks to a “genetic hack” or “shortcut.”

The wider goal isn't to produce more tobacco but to apply the technique to wheat or soy beans, in order to meet mankind's growing appetite.

Their work is part of an international project that is being financed by the Bill and Melinda Gates foundation and the British government, among others.

Farmers have long used fertilizers, pesticides and other agricultural methods to achieve higher productivity, but these techniques appear to have run their course and it is thought unlikely they can extract more significant gains.

The scientists say they have found a way to make the process of photosynthesis, the process by which plants use sunlight to convert carbon dioxide and water into energy, inherently more efficient.

An enzyme called Rubisco is key to the process of converting atmospheric carbon into an organic compound the plant consumes, a process known as “carbon fixation.”

But the enzyme also acts to “fix” atmospheric oxygen, converting it into toxic compounds that the plant expends considerable energy eliminating — energy that could otherwise be spent in growing. This competing process is known as photorespiration.

The Illinois team came up with the idea of implanting bits of algae DNA into the tobacco plant's cells to create a type of biological shortcut that would speed up photorespiration.

When a plant uses less energy on photorespiration, it is able to take that energy and put it into plant growth and plant productivity, rather than using it to metabolise this toxic compound.

China's Chang'e-4 lunar rover scripted history on January 3 when it made the first-ever soft landing on the far side of the moon and sent back

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