

## NASA's 'breeding speed' accelerates wheat production three times faster

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Our planet is expected to have two billion more people by 2050. This we will have to do something to provide a sufficient amount of food and food for humans including ideas such as creating heat-resistant cows, vertical farms and hamburgers in the lab.

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Developed by scientists at the University of Sydney, University of Queensland (UQ) and John Innes Center, this technique was built based on research that NASA tested more than a decade ago as a way to Food production in space missions. Research shows that plants are cultivated inside a greenhouse, with low-cost LEDs emitting light at specific wavelengths to increase crop photosynthesis.

Co-author of UQ's Advanced Research and Research, Lee Hickey told New Atlas: *"Infrared spectrum is important to stimulate reproductive growth and light intensity for healthy plants ."*



By using their careful lighting setup, the team was able to develop six generations of wheat, chickpea and barley and four canola plants in a year, in contrast to two or three generations of indoor glasses. This study can also be applied to peanuts, spinach and lentils, and hopefully it will also work for sunflower, pepper and beets in the future.

Hickey said: *"In the greenhouse we currently use high pressure sodium vapor lamps and they are quite expensive for electricity needs. In this study, we have shown that wheat and barley can be grown with honey. It is about 900 trees / m2, so combined with LED lighting system, this is an interesting opportunity to expand the scale of operation for the industry "*.

Hickey said this potential speed multiplication technique not only increases productivity for farmers, but also leads to better quality crops.

Hickey said: *" Increasing growth rate is a method to promote our crop development. However, we have demonstrated in our paper that GM technology is also very suitable for speed. I believe that the biggest benefits from this speed of breeding will also be successful integration with other technologies like genomics or CRISPR "*.

Although this technology has been largely tested in the laboratory, it has so far been attracting industry interest. For example, Australia's Dow AgroSciences has used technology to speed up breeding to develop wheat varieties with higher resistance to pre-harvest germination.

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