

Video: Crops in space? With long space voyages on the horizon, NASA working on ways to grow food for astronauts



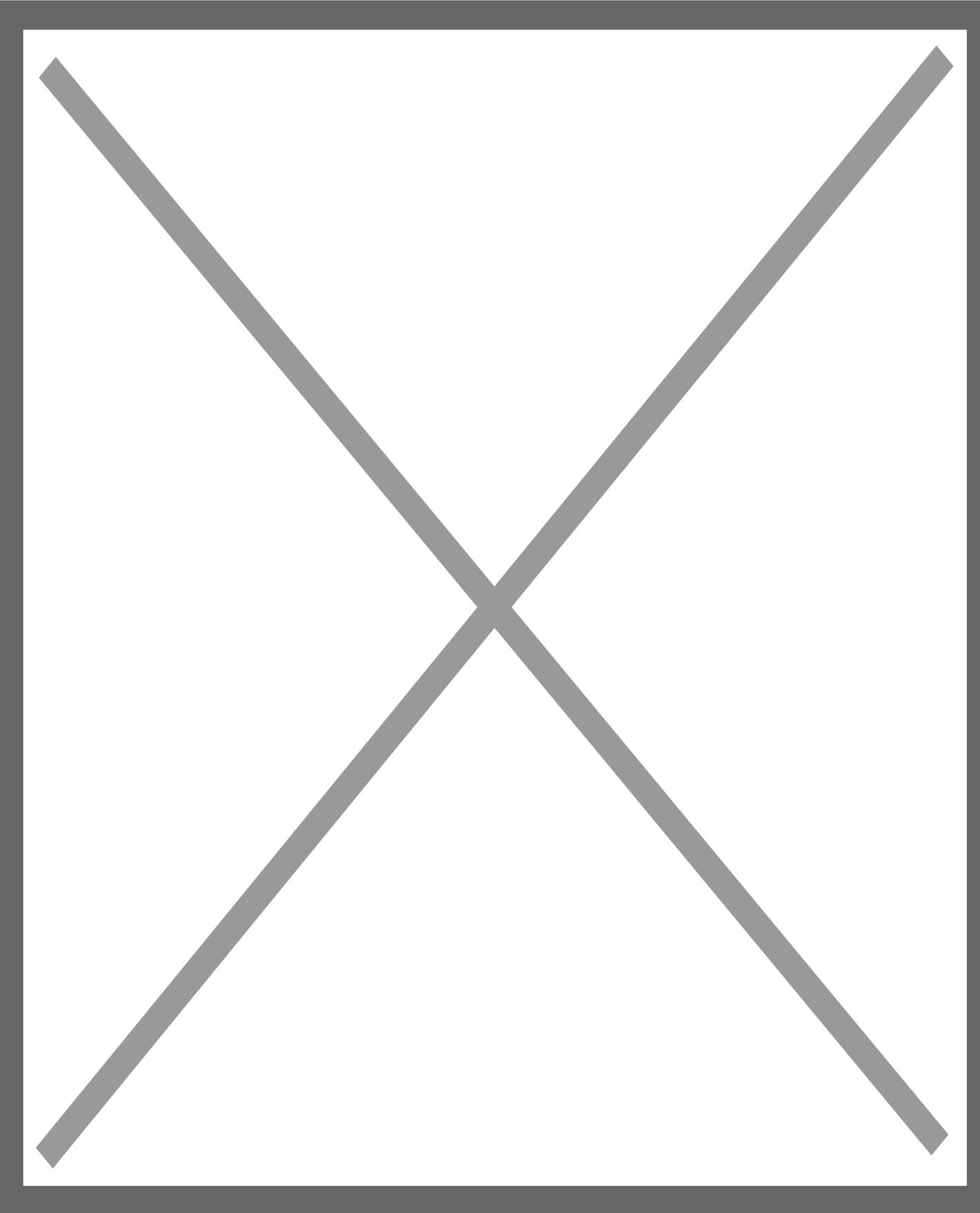
s astronauts venture farther from Earth, and for longer periods, food will become increasingly critical. Crop production can supplement a packaged diet to provide additional nutrients and dietary variety for astronauts. Several unique challenges exist for growth of plants in microgravity and on other planetary surfaces. Testing with the Veggie chamber on the International Space Station is allowing us to understand the impacts of gravity and spaceflight on crop growth and nutritional content, and the importance of plants to astronauts living and working away from our home planet.

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According to Gioia Massa, In the absence of gravity light is the dominant factor for the shoots, especially blue light, and there is some light directional guidance for the roots, but they are also very much guided by things like water/oxygen gradients and pockets of nutrients. Airflow likely also is impacting the shoots. With no natural convection scientists used forced convection, and water and nutrient delivery have become other biggest challenges because we are constantly over or underwatering plants. According to NASA scientist Gioia Massa, generally, if you can get the environment correct and all the abiotic factors regulated (mostly an engineering challenge) the plants seem to grow pretty well in space and similar to on Earth.

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Credit: NASA

This video was developed for Earth day 2021 and is an overview of NASA's space crop production on the International Space Station.

Gioia Massa is a NASA scientist at Kennedy Space Center working on space crop production for the International Space Station and future exploration endeavors. Follow the research at [@ISS_Research](#) and [@NASAKennedy](#)