It takes 25,000 pounds of food to feed 4 astronauts on a 3 year mission to Mars. Here's how 'space farming' might help feed them.

The biggest challenges is finding a way to feed crew members for the weeks, months and even years they spend in space.

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Rajkumar Hassamani, of the Institute of Agricultural Biotechnology at the University of Agricultural Sciences in India, told Al Jazeera Net in an emailed statement that according to NASA, "it costs between 20 and 20 to send a kilogram of packaged food to the International Space Station. 40 thousand dollars."

…

Hosamani added, "According to an estimate, a crew of 4 would need 10 to 12 thousand kg of food for a 3-year journey, which is logistically impossible and not economically viable. Therefore, food production inside a ship "is necessary for long-duration space exploration missions in space or on the surface of a planet."

…

Hossamani focuses on translating the results of space agriculture research into direct applications in terrestrial agriculture, and limits them to the following points:

- Space agriculture research can help develop technologies that benefit the concept of a circular agricultural economy, as resource waste can be minimal or zero, and this has direct implications for conservation agriculture on Earth.
- Space breeding is another application that comes directly from space agriculture research, and China has a dedicated space breeding program to help develop better varieties with higher yields, disease resistance, etc.
- Breeding speed is another byproduct that helps plant breeders develop better varieties faster, reducing the time needed to breed new varieties.

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