

Feeding astronauts on the Moon and Mars means sustaining plants and animals in space. Can science make it happen?

Given that missions to the Moon, Mars, and beyond will not be able to rely on regular resupply missions, these habitats will also need to be as self-sufficient as possible. This means that water and air will need to be recycled and cleaned on an ongoing basis and that some food will need to be grown in-house.

This could be problematic, since space is a very harsh environment for all living things. And beyond the usual hazards, there's a lot that we don't know about food-production in space. But with a new era of human space exploration on the horizon, we are determined to find out!

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[NASA's Advanced Plant Habitat, or APA] system employs a series of LED lights and an environmentally controlled growth chamber equipped with over 180 sensors. This allows the APA to grow plants under optimal light conditions while relaying real-time information (temperature, oxygen content, carbon dioxide content, and water content of both plants and soil) back to the team at the KSC.

In 2019, the Israel-based company [Aleph Farms](#) (in collaboration with the Russian company [3D Bioprinting Solutions](#)) grew the first meat in space. Using a process of bioprinting meat directly from bovine (cow) cells, the company produced a small quantity of beef aboard the ISS.

Looking to build on this success, the company announced a new program in [late-October of 2020](#) to grow meat in space on an industrial scale.

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