

# CAN PLANTS GROW ONLY IN SOIL FROM EARTH?

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Scientists have grown plants in soil from the Moon, a first in human history. University of Florida researchers showed ( *Communications Biology*) that plants can successfully sprout and grow in lunar soil. Their study also investigated how plants respond biologically to the Moon's soil, also known as lunar regolith, which is radically different from soil found on Earth.

This work is a first step toward one day growing plants for food and oxygen on the Moon or during space missions. In future, longer space missions might use the Moon as a hub or launching pad. It makes sense that we would want to use the soil that's already there to grow plants. Then began a simple experiment: plant seeds in lunar soil, add water, nutrients and light, and record the results. But the scientists only had 12 grams of lunar soil collected during the Apollo 11, 12 and 17 missions to the Moon to do this experiment.

To grow their tiny lunar garden, the researchers used thimble-sized wells in plastic plates normally used to culture cells. Each 'pot' was filled with nearly a gram of lunar soil, the soil was moistened with a nutrient solution and a few seeds from the Arabidopsis plant was added. The plants were grown in non-lunar soils as a control group.

All the seeds planted in the lunar soils sprouted but plants grown in the lunar soils were smaller, grew more slowly or were more varied in size than their counterparts. These were all physical signs that the plants were working to cope with the chemical and structural make-up of the Moon's soil, Anna-Lisa Paul, also one of the study's authors, says in a release. This was further confirmed when the researchers analysed the plants' gene expression patterns.

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