

Challenges of Life Support/Medical Support for Human Missions (8)  
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## AEROPONICS RICE: STAPLE ALTERNATIVE TO MOON INHABITANTS

### **Abstract**

Rice, a cereal grain, is the most widely consumed staple food for a large part of the world's human population. It is the agricultural commodity with the third highest worldwide production after sugarcane and maize. As of 2018, 83 percent of Astronauts are Americans and Russians with bread as staple food. Soon, Asian countries other than Japan, China and Korea will set humans in orbit, on the Moon, Mars and beyond. Good nutrition in longer space exploration calls for staple food that is readily available. Nowadays, soil-less techniques are regularly used to grow vegetables on the International Space Station.

Rice, being a hydrophilic cereal, may be improbable to grow and maintain. This paper introduces a novel approach to this issue, proposing the production of rice (and other cereals) through aeroponics (and hydroponics) on the moon surface. Both experimental and architectural set-up is proposed, which aims to accelerate the development of related technologies needed in space, while using them to solve pressing societal challenges on Earth.