

A Vegetable Garden (Almost) on the Moon

warchilin66, 2018

No air, no water, poor soil, extreme heat and cold, deadly cosmic rays: at first glance, the lunar landscape doesn't look like much of a place to grow crops. But if humans are ever going to colonize the moon, Mars, or anywhere else in the solar system, we're going to need to bring some edible plants along. Such "lunar greenhouses" are closer than you think. Even now, in the frozen tundra of Antarctica and the windowless backroom laboratories of the University of Arizona, prototype moon gardens are bursting with greenery. Water-cooled sodium vapor lamps flood enclosures with artificial sunshine, while plants are bathed in a nutrient-rich broth. Designed and built by Phil Sadler of Sadler Machine Co. and a team of researchers at the University of Arizona in Tucson, the University's laboratory garden is just underway. It's relatively small -- it sports 220 pounds of wet plant material, and you can imagine how much one fruit tree or a whole bunch of tomato plants would weigh by comparison -- but it consumes carbon dioxide, spits out oxygen, and produces produces about 13 gallons of drinkable water every day (in a working extraterrestrial garden, water would largely come from crew members' urine). In short, the system recycles everything. That makes it an attractive option for any resource-scarce environment, even here on Earth. Gene Giacomelli, head of the U of A's prototype, said it could be just as useful for growing crops in places where agricultural land is non-existent, like urban centers. From [the university's press release](#):

Submitted by warchilin66