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## GROWING CROPS IN SPACE TO IMPROVE THEIR DROUGHT RESISTANCE



AGRICULTURE & ENERGY

### A startup plans to launch a space-based greenhouse to speed up the mutation of seeds in hopes of developing more resilient varieties

**Spotted:** One way of improving crops is to induce mutations in them, in the hopes of developing varieties that are more resilient to disease and climate change. One technique for this is to send seeds to space, where the high levels of cosmic radiation induce more rapid changes. China has been using this technique for around 30 years, leading to the development of more than 200 new crop varieties. Now, a startup in the United Arab Emirates (UAE) is also creating a solar greenhouse expressly for this purpose.

StarLab Oasis was spun out of Texas-based Nanoracks, the world's leading provider of commercial access to space. The startup plans to begin by sending seeds to the International Space Station, where they will be cultivated by astronauts. However, the long-term aim is to send seeds to a commercial space greenhouse, called Starlab, which is planned to be operational in 2027.

The startup is backed by the Abu Dhabi Investment Office, as part of a \$41 million programme to increase food production in local arid environments. The UAE currently imports around 90 per cent of its food.

According to StarLab Oasis' co-founder Allen Herbert, a space-based plant breeding programme will help improve food security on Earth. "Space is a place where you have limited resources, limited energy, limited space. It's the perfect place to do research and that same technology can be brought right back down to Earth," he says.

Adapting to climate change is going to require many adjustments. In addition to developing new crop varieties in space, innovators are also looking to boost agriculture in other ways. Springwise has spotted [natural substances](#) used to make crops more resistant to drought, and the use of data to optimise [water consumption](#).

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## **Takeaway:**

The goal of this programme is to speed up the mutagenesis of plants, resulting in the development of more robust or productive plant varieties, such as drought-resistant crops, or plants that can grow in saline conditions. While other organisations also launch seeds into space in efforts to cultivate useful mutations, StarLab Oasis will be one of the first to commercialise the process. Another benefit of a dedicated space-based greenhouse is that it could also help design systems for producing food for space missions to the moon or Mars.