

GREENHOUSE IN ANTARCTICA



EDEN ISS



PLANT
CULTIVATION
TECHNOLOGIES
FOR SPACE



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00:00:05,000 --> 00:00:10,948

Antarctica. It is the world's coldest continent.

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00:00:10,948 --> 00:00:16,966

Scattered among the ice in this harsh and unforgiving environment are numerous research stations.

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00:00:18,846 --> 00:00:25,492

One of these is the Neumayer III Station, situated on the Ekstrom Ice Shelf

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00:00:25,492 --> 00:00:31,525

and operated by the Alfred Wegener Institute, which coordinates German polar research efforts.

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00:00:31,525 --> 00:00:38,427

Nearby Neumayer III is a small greenhouse, the German Aerospace Center's EDEN ISS,

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00:00:38,427 --> 00:00:44,875

which is working on developing innovations for cultivating food using closed-loop systems.

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00:00:44,875 --> 00:00:53,066

In a space about the size of an apartment bedroom, this greenhouse recently grew more than 600 pounds of fresh produce

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00:00:53,066 --> 00:01:01,081

– including cucumbers, lettuce, and tomatoes – in a 9.5-month period, even with outside temperatures well below freezing.

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00:01:01,081 --> 00:01:12,495

The researchers took scientific samples from their crops, but they ate the vast majority of what they grew in a period of 9.5 months.

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00:01:12,495 --> 00:01:20,177

This research not only benefits indoor agriculture here on Earth, it also has applications for space exploration.

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00:01:20,177 --> 00:01:25,726

For more than 20 years, people have continuously occupied the International Space Station,

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00:01:25,726 --> 00:01:37,075

a laboratory about the size of a six-bedroom house that orbits the Earth every 90 minutes at an average altitude of 250 miles.

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00:01:37,075 --> 00:01:44,558

Astronauts working with researchers on the ground have used the space station as a proving ground for the te

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00:01:44,558 --> 00:01:54,522

that will allow people to explore more of the Moon than ever before and take the next step in space exploration

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00:01:54,522 --> 00:02:01,921

Jess Bunchek is a plant scientist from Kennedy Space Center, NASA's leading center for growing plants in spa

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00:02:01,921 --> 00:02:12,364

The agency is sending her to work with the German Aerospace Center on research that could one day help fee

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00:02:12,364 --> 00:02:21,884

Bunchek brings important experience to EDEN ISS: knowledge gained from working with astronauts growing s

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00:02:21,884 --> 00:02:27,505

After a month-long voyage from Germany, Bunchek will spend about a year in Antarctica.