

News Release



Rocket with school research project lifts off to the International Space Station

- **BASF supports student project**
- **Experiment will analyze growth behavior of plant cuttings in zero gravity**

Kennedy Space Center, Florida, USA – February 20, 2017 –The first school experiment to test if plant cuttings build roots in zero gravity has been sent to the International Space Station (ISS). The trial, designed by Maria Koch, Raphael Schilling and David Geray - three students from an agricultural high school in Ravensburg, Germany - left Kennedy Space Center in Florida on board the SpaceX rocket on February 19, 2017 at 9.39 am local time. To date, experiments conducted in zero gravity have only concentrated on the growth behavior of seeds. If cuttings can be used to propagate plants in space, it would be a significant advance in efforts to supply food for long space missions, such as to Mars.

“We are just hugely excited that we have been able to get our experiment on the ISS” said Maria. “There hasn’t been any research on the effect of zero gravity on cuttings before. This is a once-in-a-lifetime experience.”

For their experiment, the student research team took 15mm cuttings of the plant, *ficus pumila* (climbing fig). This plant fulfills the tough space travel requirements: It is small enough to fit the limited space and resistant to the temperature differences of 4-28°C. Maria, Raphael and David carefully planted the cuttings into an agar-based growing medium in a high-tech experiment box, called the AFEx

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Friederike Wurth
Phone: +49 621 60-28182
friederike.wurth@basf.com

BASF SE
67056 Ludwigshafen
Phone: +49 621 60-0
<http://www.basf.com>
Media Relations
Phone: +49 621 60-20916
presse.kontakt@basf.com

Habitat. 36 hours before lift-off, the experiment was delivered to NASA's operations team. After the experiment has been conducted in space, a control experiment will also be carried out on Earth under the influence of gravity.

BASF's crop protection experts have supported the young scientists with research know-how, scientific consultancy, materials and equipment. To develop the experiment design, the students also completed an internship at the BASF Agricultural Center in Limburgerhof, Germany. As the cuttings will undergo extreme differences in temperature and humidity in space, they need to be protected against bacterial or fungal disease. In this area, BASF has provided both knowledge and products. BASF fungicides, Xemium® and Initium®, are helping to keep the cuttings healthy during the research on the ISS, and on the trip there and back.

"This is the most exciting field trial I have ever been involved in. Working in research has always been about exploring new ideas. But until now, our tests have never left Earth," explained Dr. Sebastian Rohrer, Early Fungicide Biology at BASF's Crop Protection division. "BASF's approach to innovation is based on connecting with others. Working with the students has been a great example of this – young people like these will be the future of innovation in agriculture."

Maria, Raphael and David, who are now studying agriculture, started the "V3PO Project" in 2015, in an after-school science club at the Edith-Stein School Ravensburg & Aulendorf. The trial will now stay in space for 30 days before returning to Earth for analysis of the results. It is the first school project from Germany to be accepted onto NASA's education program. Raphael from the V3PO team commented: "Looking far into the future, when space farming is a reality, then maybe we'll be the pioneers."

About V3PO

Calling their project "V3PO" ("Vegetative Vermehrung von Pflanzen im Orbit" / "Vegetative Propagation of Plants in Orbit"), the three students Maria Koch, Raphael Schilling and David Geray want to find out if plants can be grown from cuttings in space to provide fresh food during space missions. They attended the Edith Stein

Agricultural High School Ravensburg & Aulendorf. In addition to BASF and NASA, other sponsors supporting V3PO include: Dreamup, mymicrogravity, the Federal Ministry for the Economy and Energy, the German Center for Air and Space Travel, the business consultancy inside, Airbus, and the Kreissparkasse Ravensburg.

About BASF's Crop Protection division

With sales of more than €5.8 billion in 2015, BASF's Crop Protection division provides innovative solutions for agriculture, turf and ornamental plants, pest control and public health. Our broad portfolio of active ingredients, seed treatments, biological controls, formulations and services optimizes efficient production of high quality food and protects against post-harvest loss, damage to buildings and the transmission of disease. By delivering new technologies and know-how, BASF Crop Protection supports the effort of growers and pest management professionals to make a better life for themselves and society. Further information can be found on the web at www.agro.basf.com or on our [social media channels](#).

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