German Federal Institute for Risk Assessment

Communication 24/2025

16 July 2025

Research project for improved plant growth: "BoostCrop" receives Horizon Prize

Third-party-funded project honoured by the *Royal Society of Chemistry*

Low temperatures and cold weather can slow plant growth and even lead to massive crop failures. The EU project "BoostCrop", in which the German Federal Institute for Risk Assessment (BfR) was also involved, addressed precisely this issue. The idea is to warm up plants using a simple and inexpensive spray. Natural molecules that can absorb sunlight and convert it into heat are the key element here. Light components in wavelengths that are either harmful to plants or not used in photosynthesis are utilised. Such "molecular heaters" could help to reduce yield losses due to cold stress, increase crop yields and enable crops to be grown successfully even in less favourable climatic regions and without the use of greenhouses.

The BoostCrop project has now successfully concluded and has been awarded the Faraday Horizon Prize. Since 2020, the *Royal Society of Chemistry has* awarded the Faraday Horizon Prize to research teams engaged in cutting-edge chemistry research that opens up new avenues in their field.

"Ensuring future food security in a changing climate requires the development of novel technologies in crop production," said Professor Kerry Franklin of the Royal Society at the award ceremony. "The BoostCrop project represents a great example of how international interdisciplinary collaboration can develop innovative new approaches to such challenges."

BoostCrop was an EU-funded research project aimed at developing a highly efficient, environmentally friendly and cost-effective leaf spray to promote plant growth and ultimately ensure sustainable nutrition. The project involved 37 scientists from the fields of chemistry, physics and biology, including BfR scientist Professor Albert Braeuning, Head of the Effect-based Analysis and Toxicogenomics Unit. As part of BoostCrop, Professor Braeuning used computer-assisted prediction methods to test the respective molecules and

their by-products for potentially harmful effects on health in advance. In addition, laboratory tests were carried out with cell cultures to identify possible toxic effects such as genotoxicity or phototoxicity.

About the BfR

The German Federal Institute for Risk Assessment (BfR) is a scientifically independent public health institute within the portfolio of the German Federal Ministry of Agriculture, Food and Regional Identity (BMLEH). The BfR advises the Federal Government and the States ('Laender') on questions related to food, feed, chemical and product safety. The BfR conducts independent research on topics that are closely linked to its assessment tasks.

This text version is a translation of the original German text which is the only legally binding version.

Legal notice

Publisher:
German Federal Institute for Risk Assessment
Max-Dohrn-Straße 8-10
10589 Berlin, Germany
T +49 30 18412-0
F +49 30 18412-99099
bfr@bfr.bund.de
bfr.bund.de/en

Institution under public law
Represented by the President Professor Dr Dr Dr h. c. Andreas Hensel
Supervisory Authority: Federal Ministry of Agriculture, Food and Regional Identity
VAT ID No. DE 165 893 448
Responsible according to the German Press Law: Dr Suzan Fiack

BfR | Identifying Risks – Protecting Health