

Bavarian Research & Innovation

BAY
KLIMAFIT



Projektverbund · Strategien zur Anpassung
von Kulturpflanzen an den Klimawandel

Project network BayKlimaFit – Strategies for the
adaptation of crop plants to climate change

MEETING THE CHALLENGES OF CLIMATE CHANGE THROUGH PLANT RESEARCH

Climate change is one of the biggest challenges for mankind. It is a global phenomenon with regional implications, also for Bavaria. To minimize the consequences, strategies for mitigation and adaptation are required and applied research is needed to provide efficient solutions. The Bavarian State Ministry of the Environment and Consumer Protection is funding the project network “BayKlimaFit – Strategies for the adaptation of crop plants to climate change”.

Consequences of climate change have become omnipresent in Bavaria. The past years have shown that crop plants are exposed to extreme stress caused by changing environmental conditions. The goal of the project network BayKlimaFit is to gain insights into the adaptation of crop plants to climate change and to make a contribution to the Bavarian Climate Adaptation Strategy.

Relevance and timeliness of this topic as well as the outstanding expertise of Bavarian research in the field of plant sciences is visible through participation of experts from all over Bavaria. The project network will investigate which mechanisms enable the adaptation of crop plants to climate change and the resulting environmental conditions.

Once we understand the molecular mechanisms which plants are using to adapt to abiotic stress such as flooding, cold, drought or heat, efficient strategies can be developed to improve their capacity for resistance or tolerance. Expected results of the project network will make regional crop plants more robust to extreme weather events and will ensure a sustainable and environmentally friendly plant production.



Speaker and Coordination:

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RESEARCH TOPICS

The individual projects as well as their respective project leaders and research institutions are presented below in connection with their research topics.

Topic 1: Flooding and cold – Adaptation strategies for developing plants to climate change

Improving cold tolerance of maize

Prof. Dr. Chris-Carolin Schön
Technical University of Munich
Chair of Plant Breeding

Tolerance to waterlogging and flooding of rapeseed

Prof. Dr. Angelika Mustroph
University of Bayreuth
Department of Plant Physiology

Topic 2: Climate-induced heat and drought – coping with stress through metabolic adaptation

Heat tolerance during pollen development of maize and wheat

Prof. Dr. Thomas Dresselhaus
University of Regensburg
Chair of Cell Biology and Plant Biochemistry

Heat and drought tolerance of barley

Prof. Dr. Uwe Sonnewald
Friedrich-Alexander-Universität
Erlangen-Nürnberg
Division of Biochemistry

Validation of markers for breeding of climate-adapted and healthy barley plants

Dr. Markus Herz
Bavarian State Research Center for Agriculture
Institute for Crop Science and Plant Breeding

Climate-dependent control of water loss in leaves

Prof. Dr. Rainer Hedrich
University of Würzburg
Institute for Molecular Plant Physiology and Biophysics

Drought-resistant plants

Prof. Dr. Erwin Grill
Technical University of Munich
Chair of Botany

Topic 3: Symbionts and pathogens – Tolerance to environmental stress during times of climate change

Improved resistance to stress and absorption of phosphate through symbiosis

Dr. Caroline Gutjahr
Ludwig-Maximilians-University Munich
Emmy Noether group leader
Institute of Genetics

Disease-resistance of climate-adapted barley plants

Prof. Dr. Ralph Hüchelhoven
Technical University of Munich
Chair of Phytopathology

Cooperation partner:

Prof. Dr. Klaus Mayer
Helmholtz Center Munich
Plant Genome and System Biology

Industrial partners:

- Ackermann Saatzucht
- KWS SAAT SE
- Saatzucht Bauer GmbH & Co. KG
- Saatzucht Josef Breun GmbH & Co. KG
- Saatzucht Streng-Engelen

