Climate-smart grain crops – Functionalization of Sorghum milling fractions for application in European cereal based staple products (CLIC) – CORNET –

Coordination:	Forschungskreis der Ernährungsindustrie e. V. (FEI), Bonn (Research Association of the German Food Industry)
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Research Association:	Ecoplus - the business agency of Lower Austria Ltd., St. Pölten/Austria
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Industrial Branch:	Cereal Products
Duration:	2024 - 2026
Volume:	€ 469.795,-- (total)

Aim of the project

Ongoing climate change and the resulting extreme weather phenomena, such as heavy rainfall or droughts, require new strategies in food production to ensure the availability of high-quality cereal-based staple foods in Europe. One strategy is the European cultivation of new, unconventional grain cereals that are already successfully established in other continents due to their yield, robustness, and resistance to heat and drought, while emitting few greenhouse gases.

Sorghum millet is a promising cereal for this purpose. However, the use of this plant is not culturally established in Europe and its usability for common European foods has hardly been researched so far. Therefore, a function-oriented processing and application strategy for this climate-friendly plant needs to be developed and established for the production of nutritionally valuable and high-quality foods with high sensory acceptance. In this context, the aim of the transnational and interdisciplinary research project is to develop a processing strategy for drought-resistant and regionally cultivable sorghum. The project's research program is based on the hypothesis that a controlled dry fractionation of *Sorghum bicolor* can yield defined flours and milling fractions with different functionalities and processing properties. After identifying suitable sorghum varieties, a

milling process for dry fractionation will be developed and optimized. The fractions will then be technologically and nutritionally functionalized for use in high-value cereal-based food systems.

Economic impact

Sorghum has great potential to establish as a reliable raw material for human nutrition in Europe and thus compensate climate-related raw material fluctuations of established cereal varieties through its drought resistance. The current price of sorghum shows that it is a marketable commodity in terms of price, and its use would also make the food supply more resilient to the effects of climate change.

The results enable small and medium-sized enterprises (SMEs) to develop new products based on drought-resistant raw materials. The new process solutions and application possibilities developed in the project are of economic importance for a large number of SMEs in a wide range of food sectors. The expected costs for the implementation of the results are low, as the targeted process developments are based on existing process technologies and do not require investments in new equipment.

Further information

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Funding notice

… a project of the ***Industrial Collective Research (IGF)***

Supported by:
Federal Ministry for Economic Affairs and Energy
on the basis of a decision by the German Bundestag

RESEARCH ASSOCIATION OF THE GERMAN FOOD INDUSTRY

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This IGF project of the FEI is/was supported within the programme for promoting the Industrial Collective Research (IGF) of the German Federal Ministry for Economic Affairs and Energy (BMWE) on the basis of a decision by the German Bundestag.

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Stand: 7. Juli 2025