

A joint project along the value chain

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Background

The cultivation of winter beets is expected to considerably enhance yield. Autumn sown sugar beet crops form their canopy already before winter, so that in spring they start earlier with the formation of new leaves. The improved light interception then is assumed to increase yields. However, autumn sown beets have to survive frost periods during the winter, and furthermore, they get vernalized and start to bolt under long day conditions in April. Beets with bolters could be taken as energy crop for anaerobic digestion, non-bolting winter beets for sugar and ethanol production.

Objectives

- Analysis of the biological system winter beet along the value chain
- Including aspects of
 - breeding (bolting, winter hardiness),
 - cultivation systems and yield formation,
 - possible use, in particular for biogas production,
 - furthermore, systematic assessment of environmental and economic consequences.

Project partners

Several academic and industry partners along the value chain are included:

- Christian-Albrechts University of Kiel
- Institute of Sugar Beet Research at the Georg-August University of Göttingen
- Strube Research GmbH
- Nordzucker AG

The project is funded by the German Federal Ministry of Education and Research (BMFT, PTJ) from 2009 to 2014, the coordination is at the IfZ (Hoffmann).

Transfer measures

During the project we had:

- a meeting with all project partners to discuss the progress made every 6 months
- a written report to the funding agency every 6 months
- 5 PhD students getting their academic degree
- many oral and poster presentations as well as scientific publications in international journals
- transfer of knowledge to the industrial partners

Research along the value chain



Bolting control

- Nina Pfeiffer, Friedrich Kopisch, Christian Jung
- Institut für Pflanzenzüchtung, CAU Kiel



Genetic variation in winter hardiness

- Martin Kirchhoff, Friedrich Kopisch, Christian Jung
- Institut für Pflanzenzüchtung, CAU Kiel



Mechanisms of winter hardiness

- Jens Loel, Christa Hoffmann
- IfZ, Göttingen



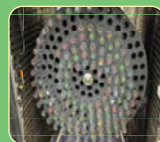
Production system winter beet

- Eric Reinsdorf, Heinz-Josef Koch
- IfZ, Göttingen



Simulation of yield formation

- Helge Stephan, Henning Kage
- Institut für Pflanzenbau, CAU Kiel



Use for biogas production

- Susanne Ohl, Eberhardt Hartung
- Institut für Verfahrenstechnik, Kiel



Technological impact assessment

- Nicol Stockfisch
- IfZ, Göttingen