



Introduction

The research project EGON (2017-2019) gives scientific support to the development of organic fruit cultivars in the project Apfel:gut. Genetic diversity of heirloom and/or underutilized apple and pear cultivars is used in a community of breeders and farmers in this project. The breeding approach is conceptualized as commons-based organic fruit breeding. Ecological-economic, organizational, and genetic evaluations are carried out to assess the ecological, societal, and economic impacts of this breeding approach.

Research Hypothesis

A commons-based organic fruit breeding approach, including:

- 1 the use of underutilized and robust cultivars
- 2 testing breeding material in an organic production setting
- 3 treating cultivars as Commons

will be preferable for the development and introduction of apple cultivars suitable for organic production over conventional methods and channels. Moreover, this approach will be preferable for a long-term sustainable organization of apple breeding for organic production.

Problem Statement

Conventional apple breeding in Germany is mainly characterized by three aspects:

- 1 Breeding takes place under rather intensive plant protection conditions. A missing focus on robustness as breeding goal challenges organic fruit farmers to find suitable cultivars for cultivation.
- 2 Modern apple cultivars bred in the last few decades are primarily derived from five progenitors. This close genetic basis negatively influences the vitality of current apple cultivars.
- 3 Newly developed apple cultivars experience an increasing economization and privatization through club concepts and short-term thinking. An increasing number of cultivars are regularly introduced into the market and fail to gain widespread market acceptance. This leads to a limited access to a part of existing cultivars and contrasts with an alternate approach of long-term sustainable development of robust cultivars.

Contrast this with the specific needs and aims of organic apple production and a sustainable development of fruit breeding

TESTING THE RESEARCH HYPOTHESIS IN DIFFERENT SUB-PROJECTS

Applied Science Project

Practical organic and participatory breeding in the project Apfel:gut

Performing of crossings, cultivating seedlings, conducting accompanied investigations in organic settings

1

Natural Science Project

Evaluation of the genetic diversity of a broad and diverse array of apple cultivars

Identifying pedigree relationships

Improving parental selection for future cultivar development at Apfel:gut

2

Social Science Project

Conceptualization of commons-based organic fruit breeding

Evaluation of the sustainability of this breeding approach

Development of possible business models and communication strategies

3