BIOFRUITNET
Boosting Innovation in ORGANIC FRUIT production through stronger networks

föko
Fördergemeinschaft Ökologischer Obstbau e.V.

PRACTICE ABSTRACT

Importance of robust varieties for sustainable organic pome fruit growing in the future

Problem

Most currently available pome fruit varieties are sensitive to various diseases and abiotic stresses. Climate change and tightening regulations on plant protection will cause increasing problems with growing such varieties.

Solution

Resistant or robust varieties need significantly lower inputs to prevent and control pests, and robustness against abiotic stresses leads to more stable, reliable yields and healthier plants.

Applicability box

Theme

Crop production, Horticulture, Temperate fruits

Keywords

Resistant varieties, Pathogens, Sustainability

Context

Central Europe

Best in

Organic pome fruits

Benefits

A reduced need for contentious inputs further enhances the sustainability of organic fruit growing and reduces labour and costs for the farm. This offers possibilities for new investments in other areas.

Practical recommendation

Shift your variety spectrum to more resistant varieties:

- Professional fruit growing often means highly intensive systems. Growing sensitive varieties results in a high need for (sometimes contentious) inputs to ensure healthy orchards and stable, profitable yields. This means expensive, time-consuming and less sustainable economic systems.

Support Consumer education and new marketing concepts:

- The choice of varieties is highly connected to consumer and market demand and not easy to shift. Support better consumer education in terms of appreciation and acceptance of defects that do not affect the internal quality, such as optical shell defects (an apple must not look perfect!)
- Work together with your bundlers and marketers to increase acceptance and to change the variety spectrum on the market to robust varieties in the medium and long term.

Support regional/ national organic breeding activities & associations:

Most of the currently available resistant varieties in pome fruits rely on single resistance genes, which slowly but steadily start to break down for various reasons:

- Low genetic diversity of the varieties because of a high incest rate from a narrow breeding pedigree in the past
- Higher selection pressure and adapting races of patogenic fungi due to few, broadly grown, large-scale varieties
- Better climatic conditions for fungi and pests caused by climate change in many regions

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Picture 1: Seedlings on an Apfel-gut organic breeding site e.V. (Photo: Oeser, 2022).

Videos:

- Participatory apple breeding - breeding new varieties on organic fruit farms, BIOFRUITNET-Video.

Weblinks

- Forecasting models such as the Fruitweb model can be used to predict treatment dates and reduce the need for spray treatments.
- Apfel-gut – Association for participatory, organic pome fruit breeding (DE)

About this practice abstract

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