

# Alternative ways of European participatory organic fruit breeding projects

## Poma Culti



InnOBreed



**Sortenkandidaten  
Candidate varieties**

Die Sortenkandidaten werden auf mehreren Bioebenen in Europa getestet. Die besten werden zur offiziellen Sortenprüfung angemeldet.  
Individual candidate varieties will be tested on organic farms across Europe. The best will be officially certified and released as participatory varieties.



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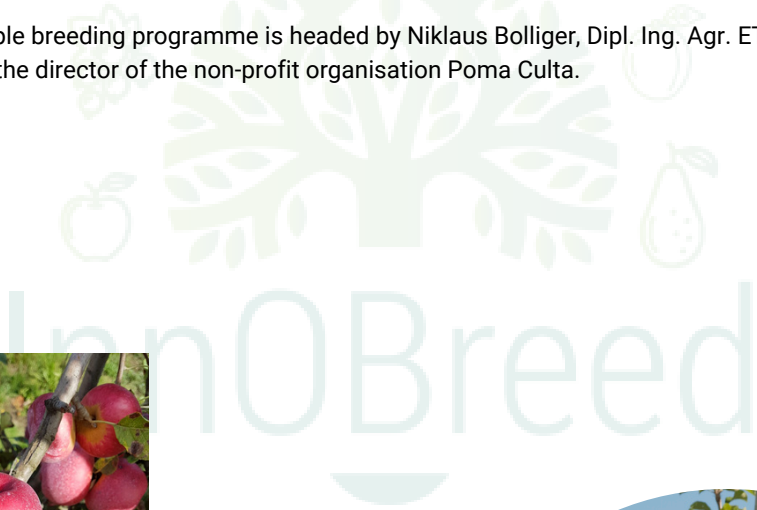


# Poma Culta

The **non-profit organisation Poma Culta** was founded in 2004. It fosters research into biodynamic fruit growing, in particular the breeding of disease-tolerant apple varieties. It has around 300 members and supporters and is responsible for fundraising.

In 2007, the association was able to acquire three hectares of suitable agricultural land in Hessigkofen, north of Bern (Switzerland). This made it possible to set up a research station specialising in the breeding of new apple varieties. It works closely with the biodynamically managed **Biohof Rigi farm**, from which it rents its premises and machinery. The farm also provides many services for practical breeding work.

The apple breeding programme is headed by Niklaus Bolliger, Dipl. Ing. Agr. ETH, who is also the director of the non-profit organisation Poma Culta.



Niklaus Bolliger,  
Director of Poma Culta,

# Aiming to achieve improved resistance properties

***The starting point for Poma Culta apple breeding is the experience of growing dessert apples organically. The required quality can only be achieved with the current varieties by using sophisticated plant protection measures.***

Although newer varieties often have monogenic resistance to scab, they still require a great deal of plant protection due to other calamities and the risk of resistance breakthroughs. Poma Culta aims to achieve improved resistance properties by means of quantitative resistance. This requires consistent selection over several generations. This work is carried out on farm, i.e. under conditions that are very similar to the conditions under which the variety will later be cultivated.

The methodological approach adopted by Poma Culta apple breeding is based on the classical crossbreeding methods. Furthermore, it is founded on a holistic understanding of living organisms.

***There is a constant interplay between the nature of the plant with its genetic heritage, and the natural conditions of climate, soil, and site.***

The breeder is actively involved in the whole formative process through his/her dedication. All breeding stages are carried out according to biodynamic guidelines in the breeding nursery – **the Pomaretum** – on the organic farm Rigi in Hessigkofen.

In order to test the candidate varieties as to their suitability for organic or biodynamic cultivation, practical field trials are carried out in cooperation with organic farms in the apple-growing regions in Nantes (France), South Tyrol (Italy), the Lake Constance region (Germany), Zeeland (The Netherlands), as well as in Switzerland.

Especially in the phytopathological area (scab, Marssonina blotch, fire blight and others), there is close expert cooperation with the Research Institute of Organic Agriculture FiBL, Frick (Switzerland) as well as with the Swiss Federal Research Station, Agroscope, Wädenswil (Switzerland). There is a joint breeding project with these partners for the utilisation of genetic resources of old, highly resistant local varieties.



# InnOBreed collaboration

***Since 2022, Poma Culta is part of the InnOBreed project as a case study, joining a network of European colleagues working in the same field.***

The exchange of know-how with the InnOBreed community is very valuable. This is evident, for example, in the field of phytopathology in the reliable recognition of symptoms of emerging diseases. In the process, the assessment scales are harmonised. This provides the basis for the exchange of data and breeding material between the partners. Breeding for quantitative resistance requires a special strategy and a gene pool with the appropriate characteristics.

***A coordinated approach by breeders who are interested in these issues creates synergies and boosts the chances of success.***

For years, Poma Culta's breeding work has focussed on improving the cultivation characteristics of apple varieties by incorporating quantitative resistances. This work has resulted in a number of valuable genotypes with well-defined characteristics. This pre-breeding material is available for use in a joint project. InnOBreed offers a good platform for coordinating and starting such a project.



You can find more information about Poma Culta here:  
[www.pomaculta.org](http://www.pomaculta.org)  
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