# The Swiss pear breeding program at Agroscope

**Damien Tschopp**, Simone Bühlmann-Schütz, Andrea Patocchi, Danilo Christen Research Division Plant Breeding, Agroscope, Switzerland; www.agroscope.ch

## Summary

The main objective of the Swiss pear breeding program at Agroscope is to breed new green and bi-colored cultivars with outstanding eating qualities, homogenous size, extended storage performance and shelf-life. Special attention is given to breeding lines with improved disease tolerance, which are mainly scab and fire-blight, and resilience towards climatic risks such as low and high temperatures. Preliminary work is under way using a first set off hybrids all resulting from 'CH201' crosses conducted between 2018 and 2020. This to further improve the breeding workflow at Agroscope.





### Introduction

80% of the Swiss pear production is dominated by four old cultivars "Bosc" (32%), "Williams" (19%), "Conférence" (18%), and "Louise Bonne" (11%). However, the new bi-colored cultivars "Celina" and "CH201" have been on the rise since their recent launch in Switzerland, accounting for 6% and 2% respectively of the total planted surface. The "CH201" pear cultivar was selected by the Agroscope pear breeding program in Conthey, Switzerland, and released in 2018 as the trademark FRED® by VariCom. It is bi-colored, has a crisp and juicy flesh, and has been well welcomed by Swiss consumer, especially young and casual pear lovers. The Swiss pear industry needs new cultivars, just like "CH201", to increase the limited choice of cultivars with improved agronomic traits and a strong consumer acceptance.

## Pear Breeding Program at Agroscope

	Workflow		(	Capacity and Timeline		Capacit	y building	
Breeding strategy Partners, networks, international projects					_			
Taste & Appearance	Fruit set & Productivity	Disease resistance				Netv	vorks	
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Pollination Crossings, Greenhouse screening, MAS, GS, pre-breeding, germplasm				~ 10 Crossings ~ 5000 Flowers/Kernels	Early fruit se	et	Scab res	sistance

collection

Seedling Disease, tasting, growth, pre-breeding

Phase 1 Disease, tasting, fruit quality, growth, yield, storage

Phase 2 and 3

Disease, tasting, fruit quality, growth, yield, storage, sensory analysis, consumer behaviour, international testing network

# ~ 2500 Seedlings ~ 500 Genotypes ~ 8 Years assessment

~ 10 Genotypes~ 8 Years assessment

periodic 1 to 2 genotypes6 to 8 years assessment



Colour



## Outlook

A first set of 23 families resulting from "CH201" crosses conducted between 2018-2020 as preliminary work for the new breeding program have been planted at Agroscope Conthey, Switzerland.





#### References

Icons: This poster has been designed using images from <u>www.flaticon.com</u>.

Czedik-Eysenberg, A., Seitner, S., Güldener, U., Koemeda, S., Jez, J., Colombini, M. and Djamei, A. (2018), The 'PhenoBox', a flexible, automated, open-source plant phenotyping solution. New Phytol, 219: 808-823. <a href="https://doi.org/10.1111/nph.15129">https://doi.org/10.1111/nph.15129</a>

## Acknowledgement for financial support





Schweizerische Eidgenossenschaft Confédération suisse Confederazione Svizzera Confederaziun svizra

Federal Department of Economic Affairs, Education and Research EAER **Agroscope** 

Swiss Confederation