



Cherry rootstock on-going breeding program throughout the world

On-going rootstock hybridation in United States

Information from Amy Iezzoni (MSU)

- Objective : dwarfing precocious rootstocks
- From 1997-2001 : 100's of seedlings were tested.
 - 93 were selected and planted with Hedelfingen scion in a test block at Michigan University (Claskville Research Center)
 - Parents : sour cherry from eastern europe
 - Criteria used to chose selections : tree health, pedigree
 - Tests used to eliminate selections : rooting of softwood cuttings, PDV & PNRSV hypersensitivity
- 2007 : 11 potential candidate rootstocks was selected and planted at a second test site at WSU IAREC
 - Five rootstocks candidate were named : Crawford, Clinton, Clare, Cass and Lake
- 2009 : plantation at WSU-Prosser (Roza Research Station)
- 2011 : the 5 candidates were planted with Montmorency, to allow over-the-row mechanical harvesting

First results

Vigor

- Clinton : Gisela 5
- Lake, Cass, Crawford : 10% less than Gisela 5
- Clare : the most dwarfing, 15-20% less than Gisela 5

Production

- Equal to better than Gisela 5 & Gisela 6

Fruit size

- Equal to Gisela 5 & 6
- These rootstocks (idem Gisela 5 & 6) need some thinning to obtain a good size of the fruit

Fruit ripening

- Lake, Cass and Clare : significantly advance fruit ripening by up to one week

On-going rootstock hybridation in United States

First results

- **Suckers**
 - Lake, Cass, Clare : yes
 - Clinton, Crawford : none

Armillaria resistant rootstocks ?

- A source of resistance to Armillaria was identified by Dr Hammerschmidt at Michigan University
 - P. maackii is tolerant to Armillaria
- Project to breed Armillaria resistant cherry rootstocks
 - April 2012
 - P. maackii x Clare
 - P. maackii x Montmorency
 - Montmorency x P. maackii
 - P. maackii x mazzard

On-going rootstocks breeding in Serbia

Information from Dusica Doric

Objectives

- Easy to propagate by in vitro and by softwood cuttings
- Well adapted rootstocks for semi-arid conditions
- Suitable for high-density plantings
- Prediction method for the rootstock and scion vigor and rootstock/variety interaction
 - Radial and axial hydraulic conduction of rootstock
 - Structural, genetical and physiological parameters of grafted union and scion

Genotypes for breeding

- *P. fruticosa* Pall.
- *P. mahaleb* L.
- *P. cerasus* L. - 'Oblacinska '

New rootstocks in progress

- *P. fruticosa* : SV2, SV4, SV7
- *P. cerasus* : ST1, ST2
- *P. mahaleb* : M5

On-going rootstocks breeding in Romania

Information from S. Budan

- **Objectives**
 - Less vigor than traditionnal rootstocks
 - Vegetative propagation
 - Good compatibility with varieties
 - Good productivity
 - Resistance to *Blumeriella jaapii*
- **Hybrids : IPC series**
 - **IPC-2**
 - Parents : P. cerasus « CrisanaB » x P. subhirtella
 - Propagation : softwood cuttings
 - Vigor : SL 64
 - Compatibility : Van, Stella, Rubin, Hedelginen
 - Sucker : none

On-going rootstocks breeding in Romania

- **IPC-3 (without commercial perspective)**
 - Parents : P. cerasus « CrisanaB » x P. subhirtella
 - Propagation : softwood cuttings, in vitro
 - Vigor : strong SL 64
 - Sucker : yes if injured roots by soil cultivation
 - Productivity : good
- **IPC-4**
 - Parents : P. avium « 77-33-26 » x P. pseudocerasus
 - Propagation : softwood cuttings, layering
 - Compatibility : Summit, Van, Hedelfingen, ...
 - Vigor : between Gisela 6 and Maxma 14
 - Sucker : none
 - Resistant to foliar diseases : *Blumeriella Jaapii*

On-going rootstocks breeding in Romania

- **IPC-5**

- Parents : *P. avium* « 77-33-26 » x *P. niponica* (var. *Kurilensis*)
- Propagation : semi-hardwood cuttings, layering, in vitro
- Vigor : close to Gisela 6
- Sucker : none
- Other characteristics : asphyxia tolerance

- **IPC-6 (without commercial perspective)**

- Parents : *P. canescens*
- Propagation : softwood cuttings
- Vigor : Gisela 5
- Sucker : yes
- Productivity : late yielding

- **IPC-7**

- Parents : (*P. avium* x *P. niponica*, var. *Kurilensis*) x IPC-4
- Propagation : softwood cuttings
- Varieties compatibility : Stella, Van
- Vigor : close to Gisela 6
- Sucker : none
- Productivity : good
- Other characteristics : well suited to different kind of soils
 - Sandy loam up to loamy-clay texture

On-going rootstocks breeding in Hungary

Information from Geza Bujdoso

Objectives

- To establish intensive orchards
- Vigor : at least medium vigourous (SL 64 or Maxma 14)
- Good compatibility with cherry varieties
- Lime tolerance
- Drought tolerance
- Good productivity : more than SL 64
- Suckers : none

On-going rootstocks breeding in Hungary

Mahaleb hybrids

Rootstocks	Parents	Propagation	Vigor (% SL 64)	Productivity (% SL 64)	Size of the fruit	Suckers	Other characteristics
C 500 (Cema)	selected Prunus mahaleb genotype, seed tree, needs pollinator	by seed	100-110 %	100%	SL 64	none	good compatibility, tolerates alkaline and lime soils, drought and hot summer
C 2753 (Cemany)	selected Prunus mahaleb genotype, seed tree, needs pollinator	by seed	90-100 %	100%	SL 64	none	good compatibility, tolerates alkaline and lime soils, drought and hot summer
Erdi V	selected Prunus mahaleb genotype, seed tree, needs pollinator	by seed	90-100 %	80-90%	SL 64	none	good compatibility, tolerates alkaline and lime soils, drought and hot summer
Korponay	selected Prunus mahaleb genotype self fertile seed tree	by seed	70-80%	90-110%	< SL64	none	good compatibility, tolerates alkaline and lime soils, drought and hot summer, best for sour cherries
Egervar	selected Prunus mahaleb genotype	softwood cuttings or micropropagation	85-90%	105-110%	> SL64	none	good compatibility, tolerates alkaline and lime soils, drought and hot summer, hardy, high rooting %
Bogdany	selected Prunus mahaleb genotype	soft- or hadwood cuttings and micropropagation	90-95%	105-110%	> SL64	none	good compatibility, tolerates alkaline and lime soils, drought and hot summer, hardy
Magyar	selected Prunus mahaleb genotype	softwood cuttings or micropropagation	70-75%	130%	> SL64	none	good compatibility, tolerates alkaline and lime soils, drought and hot summer, hardy
SM 11/4	selected Prunus mahaleb genotype	softwood cuttings or micropropagation	about same 100%	90%	SL 64	none	good compatibility, tolerates alkaline and lime soils, drought and hot summer, hardy

On-going rootstocks breeding in Germany

Gisela series : information from giselacherry.com & J. Vercammen

- **Gisela 13 (Gi 148/13)**
 - Parents : P. cerasus « Schattenmorelle » x P. canescens
 - Vigor : Gisela 6 to slightly more vigourous (giselacherry.com)
 - Trials
 - Belgium Pcfruit (J. Vercammen) : Kordia & Summit
 - Kordia : Vigor = Gisela 12
 - Summti : Vigor close to Gisela 5
 - USA (giselacherry.com)
- **Gisela 17**
 - Parents : P. canescens x P. avium
 - Vigor : more than Gisela 6
 - Productivity : similar to less than Gisela 6
 - Replantation : good results in Germany

Gisela® cherry rootstocks

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giselacherry.com and video are a collaborative project of Win Cowgill (Rutgers Cooperative Extension), Lynn Long (Oregon State University), Jon Clements (UMass Extension) and Greg Lang (Michigan State University; and Gisela, Inc.

NEW! Download Cherry Training Systems (Lynn Long, Gregory Lang, Stefano Musacchi, and Matthew Whiting) [here](#). Now available as a tablet (iOS and Android) app too.

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Worldwide Choice - Gisela® Rootstocks

- Virus tolerant
- Precocious, Productive and Very Hardy
- Wide Soil Adaptability

Cherries grown on Gisela® dwarfing rootstocks are highly precocious, highly productive, and highly profitable! But, growing cherries on Gisela successfully requires attention to detail and specific horticultural skills. The goal of this website is to help you succeed in growing an orchard of cherry trees on Gisela rootstocks.



On-going rootstocks breeding in Germany

Sto series : information from Peter Stoppel, La Tapy, Ctifl

- Sto 1
 - La Tapy 2004/2009 : Skeena, Regina
 - Ctifl, La Tapy, Sefra : 2014 : Sweet Early[®], Feroni
 - Belgium Pcfruit (J. Vercammen): 2014 : Regina
- Sto 2
 - La Tapy 2004/2009 : Skeena, Regina
 - Ctifl, La Tapy, Sefra : 2014 : Sweet Early[®], Feroni
 - Belgium Pcfruit (J. Vercammen) : 2014 : Regina
- Sto 3
 - La Tapy 2004/2009 : Skeena, Regina
 - Ctifl, La Tapy, Sefra : 2014 : Sweet Early[®], Feroni
- Sto 4
 - La Tapy 2004/2009 : Skeena, Regina
- Sto 5
 - La Tapy 2004/2009 : Skeena, Regina

On-going rootstocks breeding in Belgium

Information from Hugo Magein (CRA-W Gembloux), Ctifl, La Tapy, Sefra

Following the first series (Camil, Inmil, Damil) : trials in France with Fertard and Summit (Ctifl, La Tapy, Sefra)

- **S6** (V 3904)
 - Parents : Prunus Dawyckensis S6 (Damil) open pollination)
- **S4** (V 3905)
 - Parents : Prunus Dawyckensis S6 (Damil) open pollination)

New series : DIS 1, DIS 7, DIS 9

- Parents : Prunus Dawyckensis x Prunus Incisa serrula (Inmil)
- Compatibility : OK
- Vigor : ?
- Suckers : ?
- Productivity : ?