Varietal innovation of pears in Belgium

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Proeftuin pit- en steenfruit (pps)
Topics

- Acreage of pears in Belgium
- Breeding programs in Belgium
- Variety testing of pears in Belgium
- Demands for a new pear variety
- Experiences with new pear varieties
## Acreage of pears in Belgium (ha)

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Conference</td>
<td>2.357</td>
<td>3.900</td>
<td>7.351</td>
<td>7.800</td>
<td>8.050</td>
</tr>
<tr>
<td>Doyenné</td>
<td>711</td>
<td>890</td>
<td>677</td>
<td>650</td>
<td>630</td>
</tr>
<tr>
<td>Durondeau</td>
<td>350</td>
<td>470</td>
<td>228</td>
<td>180</td>
<td>165</td>
</tr>
<tr>
<td>Others</td>
<td>230</td>
<td>200</td>
<td>323</td>
<td>450</td>
<td>495</td>
</tr>
</tbody>
</table>

Conference 2015 = 86.2 %
New plantings = 93 % Conference
Acreage apple 2015 : 6.865 ha

2014 : 374,325 Tons
2015 : 346,860 Tons
New pear varieties in Belgium

- **Corina®**: 100 ha (plant stop)
- **Sweet Sensation®**: 135 ha ($\Rightarrow$ 180 or 420 ha)
- **Cepuna/Migo®**: expectation/hope = 140 ha by 2022
- **Celina/QTee®**: 75 ha (+ 25 ha / stop)
- **Dicolor**: ± 10 ha (also in CZ and UK)
- **Xenia®/Oksana**: 10 ha (?) $\Rightarrow$ 100 ha
- **Regal Red® Comice**: 5 ha
- **Dazzling Gold®/Uta**: only trial parcel at BFV
- **Queens Forelle®/Thimo**: 3 ha
Breeding programs in Belgium

- Better3fruit – Leuven
  - Together with Sempra (Czech Republic)
  - Fruit quality and appearance

- CRA-W – Gembloux
  - Crosses with old(er) varieties
  - Disease resistance

- Jean Moors – Spouwen
  - Fruitgrower = hobby
  - Improvement (in comparison with existing varieties)
• 5 trees in a parcel with fungicides (IPM)
• 5 trees with minimal use of fungicides (since 2014)
• Effect of GA-treatments on fruit set
• Compared to Conference
• Discriptor list based on IBPGR Descriptor List
• Quince Adams with interstem of Beurré Hardy or Doyenné du Comice
• Annual report to the breeders
40 to 120 trees are planted to test the best varieties at orchard level

- Picking moment
- Fruit set / chemical thinning
- Fertilisation and fruit quality
- Planting systems and training systems
- Storage (together with VCBT)

Technical report
Demands for a new pear variety

Grower

- Productive, good size, good taste
- Vigour not to strong
- Possibility of parthenocarpy
- Fruit set through sprayings with GA
- Optimal for our climate
- Low susceptible to fire blight
- Good storability and shelf life
- Low susceptible to pests and diseases
Demands for a new pear variety

Consumer

- Good outlook
- Good taste
- Good storability and shelf life
- No residus

- Earlier available
- Green and smooth, less russeting
- Red blush
New pear varieties

Corina®

Celina/QTee®

Cepuna/Migo®

Sweet Sensation®

Dicolor
Corina® (Vroege Saels) in Belgium

- ± 100 ha (plant stop)
- Early Conference (**3 weeks earlier**)
- Club-variety
- Production 2014: 1,900 Tons
- Expected production in 2016: 2,421 Tons
- Nursery R. Nicolaï and “Gebroeders Saels”
<table>
<thead>
<tr>
<th>Variety</th>
<th>Kg/tree</th>
<th>% to Conference</th>
<th>Fruit weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conference</td>
<td>79.7</td>
<td>100</td>
<td>182</td>
</tr>
<tr>
<td>Corina®</td>
<td>65.3</td>
<td>82</td>
<td>131</td>
</tr>
</tbody>
</table>

Planting year: 1999-2000  
Rootstock: Quince Adams (B. Hardy)
Cepuna/Migo®

- Conference x Doyenné d’Hiver
- Angers (France)
- Harvest: immediately after Conference
- Productive, good fruit size
- Good storability and shelf-life
- Good taste, juicy
- Almost no russeting
- Problems with incompatibility on Quince C
<table>
<thead>
<tr>
<th>Year</th>
<th>Kg/tree</th>
<th>Tons/ha</th>
<th>Fruit weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>35.0</td>
<td>60.0</td>
<td>295</td>
</tr>
<tr>
<td>2008</td>
<td>11.9</td>
<td>20.4</td>
<td>246</td>
</tr>
<tr>
<td>2009</td>
<td>31.6</td>
<td>54.2</td>
<td>230</td>
</tr>
<tr>
<td>2010</td>
<td>28.8</td>
<td>49.4</td>
<td>223</td>
</tr>
<tr>
<td>2011</td>
<td>33.3</td>
<td>57.1</td>
<td>240</td>
</tr>
<tr>
<td>2012</td>
<td>35.5</td>
<td>60.8</td>
<td>200</td>
</tr>
<tr>
<td>2013</td>
<td>35.4</td>
<td>60.7</td>
<td>185</td>
</tr>
<tr>
<td>2014</td>
<td>41.0</td>
<td>70.3</td>
<td>213</td>
</tr>
<tr>
<td>2015</td>
<td>41.1</td>
<td>70.4</td>
<td>172</td>
</tr>
<tr>
<td>Total</td>
<td>293.6</td>
<td>503.2</td>
<td>223</td>
</tr>
</tbody>
</table>

Planting year: 1999-2000

Rootstock: Quince Adams (B. Hardy)
Almost no russetting
- Smooth skin, but no sorting damage or damage by chafing
- Fruits are very juicy and have a good taste
- Fruits remain green for a long time.
- Even in normal cooling fruit quality remains good for several months.
Celina/QTee®

- Colorée de Juillet x Williams
- Norway
- Productive
- Good fruit size (65-70 mm)
- Good taste, very attractive
- Early bloom
- Very few second flowering
- Hand thinning is necessary
- Second half of August
Celina/QTee®
Yield data 2007-2015

Planting year: 2005-2006
Rootstock: Quince C (Condo)
(Conference on Quince Ad. (Condo))
Outlook 2013

- Hasselt: 18 Januari 2013
- Growers meeting 2013: 58 participants
- Ministry of agriculture
- Judgement of the outlook: 1-9

Bar chart showing ratings for different varieties:

- Sweet Sensation: 6
- Cepuna: 8
- Celina: 8
- Uta: 5
- Queen's Forelle: 8
- Red clone of Doyenné du Comice
- Club-variety
- Good fruit set, but severe june drop
- Colouring can be a problem
- Same vigour as Comice
- Same harvest time
- Taste test with fruit growers
  - 6.4 (scale 1-9)
<table>
<thead>
<tr>
<th>Rootstock</th>
<th>Kg/tree 2015</th>
<th>Fruit weight (g) 2015</th>
<th>Kg/tree (2006-2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quince Ad.</td>
<td>19.7</td>
<td>244</td>
<td>92.6</td>
</tr>
<tr>
<td>Quince C</td>
<td>21.8</td>
<td>221</td>
<td>93.5</td>
</tr>
</tbody>
</table>

Planting year: 2005-2006
Rootstock: Quince C and Quince Adams
Planting distance: 3.50 x 1.50 m (1.714 trees/ha)
Dicolor

- Holenicka x Williams
- Czech Republic
- Productive
- Early bloom
- Second flowering
- Susceptible to fire blight (NOT at pcfruit)
- Long stalk
- Good taste
- Second half of September
Dicolor
Yield data 2005-2015

Planting year: 2003-2004
Rootstock: Quince Adams (Conference on Quince C)
Planting distance: 3.50 x 1.50 m (1.714 trees/ha)

<table>
<thead>
<tr>
<th>Kg/tree</th>
<th>g</th>
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<tbody>
<tr>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>180</td>
<td>190</td>
</tr>
<tr>
<td>160</td>
<td>180</td>
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<td>140</td>
<td>170</td>
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<td>120</td>
<td>160</td>
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<tr>
<td>100</td>
<td>150</td>
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<td>80</td>
<td>140</td>
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<td>60</td>
<td>130</td>
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<tr>
<td>40</td>
<td>120</td>
</tr>
<tr>
<td>20</td>
<td>110</td>
</tr>
<tr>
<td>0</td>
<td>100</td>
</tr>
</tbody>
</table>

![Graph showing Kg/tree and Fruit weight (g) for Conference and Dicolor varieties.](image-url)
Demands for a new pear variety

Consumer

- Good taste ⇒ **Sweet Sensation®**
- Good outlook ⇒ **Cepuna/Migo®** and **Celina/QTee®**
- Earlier available ⇒ **Corina®**
- Green and smooth, less russetting
  ⇒ **Cepuna/Migo®**
- Red blush
  ⇒ **Celina/QTee®**
  ⇒ **Sweet Sensation®**
  ⇒ **Dicolor®**
Thank you for your attention!

Conference will remain the most important pear variety in Belgium!

(Research done with financial support of CMO)