Experience with different Training systems of Sweet Cherries in Belgium

J. Vercammen

Proeftuin pit- en steenfruit (pps)
Training systems

- Training systems with Sweetheart on Gisela 5
- V-systems with Sweetheart on Gisela 5
- UFO-System with Skeena on Gisela 6
- Bibaum® with Kordia on Gisela 5
Training systems with Sweetheart
Training systems Sweetheart

- Variety: Sweetheart
- Planting year: March 2003
- Rootstock: Gisela 5
- Planting distance: depending on the system
- Objects:
  - Classical system (Principle Zahn)
  - English system (breaking strong branches)
  - Spanish bush
  - V-system
Classical system

- Planting distance: 5.0 x 2.5 m
- Trees/ha: 720
- Height: 3.5 to 4 m
- Principle Zahn
  - Too strong branches: cutting on a stump
  - Lighter branches: if necessary, bend down
Classical system
English system

- Planting distance: 5.0 x 2.0 m
- Trees/ha: 900
- Height: 3 to 3.5 m
- Year 1:
  - A number of branches or shoots are broken and attached to an underlying branch
- Later years:
  - Pruning is mainly done in the same way as in the classical system
  - + breaking some branches/shoots
English system
Spanish bush

- Planting distance: 5.0 x 3.0 m
- Trees/ha: 600
- Height: 2 to 3 m
- Year 1:
  - 5 to 6 are maintained and topped
  - Central axe is removed in the 2nd year
- Later years:
  - New shoots are topped (first years)
  - Pruning in spring to have more light in the trees
  - Summer pruning
Spanish bush
V-system

- Planting distance: 5.0 x 1.5 m
- Trees/ha: 1.200
- Height: 2.5 to 3.5 m
- Planting year:
  - The best four branches per tree are used as leader branches for the formation of the V-system
  - The central axe is removed on a stump
- Later years:
  - Renewing of the fruiting wood
  - Topping 1-year-old shoots in summer
V-system
## Training systems Sweetheart

### Yield data Sweetheart 2013

<table>
<thead>
<tr>
<th>Object</th>
<th>Kg/tree</th>
<th>Trees/ha</th>
<th>Ton/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classical system</td>
<td>36.0</td>
<td>720</td>
<td>25.9</td>
</tr>
<tr>
<td>English system</td>
<td>26.4</td>
<td>900</td>
<td>23.8</td>
</tr>
<tr>
<td>Spanish bush</td>
<td>32.0</td>
<td>600</td>
<td>19.2</td>
</tr>
<tr>
<td>V-system</td>
<td>11.0</td>
<td>1200</td>
<td>13.2</td>
</tr>
</tbody>
</table>

Planting year: 2002-2003  Rootstock: Gisela 5
### Training systems Sweetheart

#### Fruit weight Sweetheart 2013

<table>
<thead>
<tr>
<th>Object</th>
<th>Fruit weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before sorting</td>
</tr>
<tr>
<td>Classical system</td>
<td>9.4</td>
</tr>
<tr>
<td>English system</td>
<td>9.3</td>
</tr>
<tr>
<td>Spanish bush</td>
<td>9.6</td>
</tr>
<tr>
<td>V-system</td>
<td>10.2</td>
</tr>
</tbody>
</table>

Planting year: 2002-2003  
Rootstock: Gisela 5
Training systems Sweetheart

**Yield data Sweetheart 2014**

<table>
<thead>
<tr>
<th>Object</th>
<th>Kg/tree</th>
<th>Trees/ha</th>
<th>Ton/ha</th>
<th>Fruit weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classical system</td>
<td>38.3</td>
<td>720</td>
<td>27.6</td>
<td>9.6</td>
</tr>
<tr>
<td>English system</td>
<td>31.2</td>
<td>900</td>
<td>28.0</td>
<td>11.7</td>
</tr>
<tr>
<td>Spanish bush</td>
<td>51.0</td>
<td>600</td>
<td>30.6</td>
<td>12.0</td>
</tr>
<tr>
<td>V-system</td>
<td>15.7</td>
<td>1200</td>
<td>18.9</td>
<td>12.8</td>
</tr>
</tbody>
</table>

Planting year: 2002-2003  Rootstock: Gisela 5
Training systems Sweetheart

Yield data Sweetheart (2004-2014)

Planting year: 2002-2003  Rootstock: Gisela 5

Classical system  English system  Spanish bush  V-system

Ton/ha  Fruit weight (g)
Conclusion

- The classical system has the highest production.
- The English system gives a similar yield per ha, but with more trees/ha.
- The V-system is a very intensive system, both in terms of work and investment, but the production remains too low.
- The Spanish bush has very low productions in the first years, but is better to cover to avoid cracking of the cherries.
V-system with Sweetheart
V-system Sweetheart

- Variety: Sweetheart
- Planting year: March 2005
- Rootstock: Gisela 5
- Planting distance: 4,0 x 1,5 m and 4,0 x 0,75 m
- Objects:
  - Trees with 4 equal branches
  - Wips ⇒ Trees with 2 equal branches
V-system Sweetheart

4 branches: 4 x 1.5 m

2 branches: 4 x 0.75 m
## V-system Sweetheart

### Yield data Sweetheart 2013

<table>
<thead>
<tr>
<th>System</th>
<th>Kg/tree</th>
<th>Fruit weight (g) Before</th>
<th>After</th>
<th>Kg/tree &gt; 28 mm</th>
<th>% &gt; 28 mm</th>
<th>Ton/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 branches</td>
<td>5.2</td>
<td>10.0</td>
<td>11.3</td>
<td>1.9</td>
<td>38</td>
<td>15.5</td>
</tr>
<tr>
<td>4 branches</td>
<td>11.5</td>
<td>10.6</td>
<td>11.6</td>
<td>5.5</td>
<td>48</td>
<td>17.3</td>
</tr>
</tbody>
</table>

4 branches: 4 x 1.5 m

2 branches : 4 x 0.75 m
V-system Sweetheart

Yield data Sweetheart 2014

<table>
<thead>
<tr>
<th>System</th>
<th>Kg/tree</th>
<th>Fruit weight (g)</th>
<th>Kg/tree &gt; 28 mm</th>
<th>% &gt; 28 mm</th>
<th>% Cracking</th>
<th>Ton/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 branches</td>
<td>8.3</td>
<td>10.6</td>
<td>2.5</td>
<td>30</td>
<td>46</td>
<td>25.0</td>
</tr>
<tr>
<td>4 branches</td>
<td>14.4</td>
<td>10.8</td>
<td>3.8</td>
<td>27</td>
<td>61</td>
<td>21.6</td>
</tr>
</tbody>
</table>

4 branches: 4 x 1.5 m
2 branches: 4 x 0.75 m
V-system Sweetheart

Yield data Sweetheart (2007-2014)

4 branches: 4 x 1.5 m
2 branches : 4 x 0.75 m
Conclusion V-systems

- Kordia grows too strong for an intensive V-system, also with root pruning
- Yields remain too low with Kordia
- No problem with growth with Sweetheart
- A self fertile variety as Sweetheart is better suited for an intensive V-system
- The V-system is a very intensive system, both in terms of work and investment
- A V-system is easy to cover with plastic
UFO-system with Skeena
UFO-system Skeena

- Variety: Skeena
- Planting year: 2008-2009
- Rootstock: Gisela 6
- Planting distance: 4 x 2 m
- Objects:
  - Classical system
  - UFO-system (= Upright Fruiting Offshoot)
UFO-system planting year

- It is best to start with whips
- Planted under an angle of 45°
UFO-system 2nd year

- Attaching shoots to the wire
- Cutting too strong shoots
UFO-system 2\textsuperscript{nd} year

- Attaching shoots to the wire
- Cutting too strong shoots
- After a few year entire branches must be removed
UFO-system Skeena
UFO-system Skeena

### Yield data Skeena 2013

<table>
<thead>
<tr>
<th>System</th>
<th>Kg/tree</th>
<th>Fruit weight (g)</th>
<th>% Klasse I *</th>
<th>% Cracked</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Before</td>
<td>After</td>
<td></td>
</tr>
<tr>
<td>UFO</td>
<td>7.0</td>
<td>10.3</td>
<td>11.0</td>
<td>53.2</td>
</tr>
<tr>
<td>Classical system</td>
<td>6.9</td>
<td>10.8</td>
<td>11.5</td>
<td>54.0</td>
</tr>
</tbody>
</table>

Planting year: 2008-2009

Rootstock: Gisela 6
# UFO-system Skeena

## Yield data Skeena 2014

<table>
<thead>
<tr>
<th>System</th>
<th>Kg/tree</th>
<th>Fruit weight (g)</th>
<th>% &gt; 28 mm</th>
<th>% Cracked</th>
<th>Ton/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>UFO</td>
<td>9.4</td>
<td>8.6</td>
<td>30.9</td>
<td>43.3</td>
<td>10.6</td>
</tr>
<tr>
<td>Classical system</td>
<td>13.6</td>
<td>8.5</td>
<td>42.8</td>
<td>28.6</td>
<td>15.3</td>
</tr>
</tbody>
</table>

Planting year: 2008-2009  
Rootstock: Gisela 6
UFO-system Skeena

Yield data Skeena (2010-2014)

Planting year: 2008-2009  
Rootstock: Gisela 6
Conclusion UFO-system

- UFO-system asks more work
- The first years the production is lower
- Fruit size is slightly smaller
- Less class I
- An UFO-system is easy to cover with plastic
- Too little experience
- No recommendation
Bibaum® Kordia
Bibaum® Kordia

- Variety: Kordia
- Planting year: March 2013
- Rootstock: Gisela 5
- Planting distance:
  - Single axe: 5 x 0.5 m (3.600 trees/ha)
  - Bibaum®: 5 x 1.2 m (1.500 trees/ha)
# Yield data Kordia 2014

<table>
<thead>
<tr>
<th>System</th>
<th>Kg/tree</th>
<th>Fruit weight (g)</th>
<th>% &gt; 28 mm</th>
<th>% Cracked</th>
<th>Ton/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single axe</td>
<td>0.6</td>
<td>9.8</td>
<td>20.8</td>
<td>45.6</td>
<td>2.3</td>
</tr>
<tr>
<td>Bibaum®</td>
<td>1.1</td>
<td>9.2</td>
<td>10.6</td>
<td>42.0</td>
<td>1.6</td>
</tr>
</tbody>
</table>

Planting year: 2012-2013  
Rootstock: Gisela 5
Yield data Kordia 2014

Planting year: 2012-2013

Rootstock: Gisela 5
Conclusion Bibaum®

- Less trees per ha than single axe
- Less growth
- More suited for self-fertile varieties?
- Too little experience
- At this moment no recommendation, either for single axe, nor Bibaum®
General conclusion

- Classical system remains our recommendation
- The V-system is a very intensive system, both in terms of work and investment
- V-system, Spanish bush and UFO-system are easy to cover with plastic
- Too little experience with UFO, single axe and Bibaum®
Thank you for your attention!

Sweetheart on Gisela 5 in a V-system