Growth and yielding of four sweet cherry cultivars grafted on dwarf rootstocks and interstocks, in central Poland

Elżbieta Rozpara & Agnieszka Glowacka
Research Institute of Horticulture
Skierniewice, Poland
# Sweet cherry production in Poland

[in thousands tons]

<table>
<thead>
<tr>
<th>Years</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
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<tbody>
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<td>20</td>
<td>41</td>
<td>51</td>
<td>37</td>
<td>38</td>
<td>41</td>
<td>51</td>
<td>48</td>
</tr>
</tbody>
</table>
The main problems in sweet cherry production in Poland

- Frost damages (in winter and spring)
- Bacterial cancer
- Birds damages
- Fruit cracking and fruit rot
The main problems in sweet cherry production in Poland
Frost damages of young trees root system
Traditional sweet cherry production in Poland

- Rootstock: Mazard sdlg.
- Cultivars: Red Buttner’s, (Poznańska), Van, Hedelfinger, Schneider’s Spate

In such orchards fruit picking, pests control and others works were difficult, expensive or impossible.
What the growers should do?

Introduce:

- the new cultivars with:
  
  good fruit quality, no cracking, resistant to frost, very early and very late ripening

- Dwarf rootstock
  
  winter hardy

- Modern training systems

- Modern technology of growing
From 1996 – 2012 - twelve field experiments were conducted (10 IPM and 2 Organic)

Objectives: numerous cultivars, rootstocks and interstocks

Place: Experimental Orchard Dąbrowice and Experimental Organic Orchards (both located in central Poland)

Grey-brown, podzolic soil (with 1,3% organic matter)
„Growth and yielding of four sweet cherry cultivars grafted on dwarf rootstocks and interstocks”
Material and methods


Combinations:
- Mazzard sdlgs – control
- Gisela 5
- P- HL A
- P- HL A interstock/ Mazzard sdlgs

12 trees/combination
(3 trees x 4 replications)
Material and methods

- 4 x 2 m distance
- Spindle form (central leader)
- Drop irrigation was applied
- Herbicide strips in rows and grass between them

Measurements:
- Tree growth
- Yield
- Index of productivity
- Fruit quality and some others
TCSA (in cm²) of four sweet cherry cvs. grafted on: ‘P-HL A’, ‘Gisela 5’ rootstocks and 'P-HL A' interstocks [2002-2011]
Cumulative yield [kg/tree]
[2002-2011]
Efficiency index [kg/cm²]
[Dąbrowice, 2002-2011]
‘Kordia’ grafted on Gisela 5 (Dąbrowice, 2009)
## Some other results
[Dąbrowice, 2001-2011]

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Rootstock</th>
<th>Flowering [10% open flowers]</th>
<th>Ripening time</th>
<th>Fruit weight [g]</th>
<th>Firmness [N]</th>
<th>Soluble soilids content [%]</th>
<th>Fruit cracking</th>
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</thead>
<tbody>
<tr>
<td>BURLAT</td>
<td>Mazard sdlgs.</td>
<td>23.04</td>
<td>12.06</td>
<td>7.89 e</td>
<td>5.70 f</td>
<td>13.9 ij</td>
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<tr>
<td></td>
<td>P-HL A</td>
<td>-2</td>
<td>-2</td>
<td>7.46 f</td>
<td>5.41 f</td>
<td>14.9 gh</td>
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<td>Gisela 5</td>
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<td>-2</td>
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<td>5.67 f</td>
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<td>0</td>
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<tr>
<td>SUMMIT</td>
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<td>15.5 fg</td>
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<tr>
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<td>6.90 de</td>
<td>16.4 def</td>
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<td>8.49 ab</td>
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<tr>
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<td>+25</td>
<td>8.90 cd</td>
<td>8.77 a</td>
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<tr>
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<td>+27</td>
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<td>8.44 ab</td>
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<td>REGINA</td>
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<td>+37</td>
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<td>7.54 cd</td>
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</tbody>
</table>
Conclusions

- The rootstocks: Gisela 5 and P-HL A influenced dwarfing growth and yielding. The rootstocks should be used in modern cherry production in Poland.

- P-HL A used as an interstock is not suitable for modern orchards.

- ‘Kordia’ was the most productive cherry of all investigated cvs. Independently of rootstocks/interstocks combination.

- ‘Regina’ exhibited its high value only on Gisela 5. Only this rootstock the trees of ‘Regina’ were productive.
Intensive, modern sweet cherry production in Poland can be profitable despite the relatively harsh climatic conditions.

It necessary to grow only selected cultivars with very good fruit quality and productivity, such: ‘Kordia’, ‘Regina’ and some promising (‘Vera’, ‘Carmen’, Justyna’, ‘Tamara’, ‘Debora’ etc.)

The trees of selected cultivars should be planted on dwarf rootstock, such: Gisela 5 (Gisela 6) and P-HL A

‘Regina’ exhibited its high value, but only on Gisela 5. Only this rootstock the trees of ‘Regina’ were enough productive

The trees of all investigated cvs. grafted on Gisela 5 were more winter hardy than on Mazard sdlgs
THANK YOU FOR YOUR ATTENTION