Project CAP ReD: Cherry Apricot Plum
Reduction of inputs and Sustainability of production systems

Project led by Ctifl – Partners: AREFE / BIP / CEFEL / CENTREX / INRA
Bordeaux / INRA Gotheron / La Pugère / La Tapy / SERFEL

Results 2015 of a cherry plot under row-by-row nets at La Tapy
Presentation of the only cherry plot (La Tapy)

Main objective: reduce the use of inputs by at least 50%

Year of planting: 2012
Training system: Free Axis
Distance of planting: 4 x 1.5m
Varieties: Belge and Regina
Rootstock: Gisela 6

3 modalities:
- PFI, or IPM (3 rows)
- ECO50 (5 rows)
  Under nets, mechanical weeding
- Untreated control (1 row)
Net device

**Plastic roof**
Protection against rain and cracking
Width: 1.4m

**Net**
Protection against flies
Mesh: 6 x 6
Climatic conditions under the net

Recording of temperatures under and out the net from May 21st to June 26th

Average day difference of 0.36°C
Major peak with the first ray of sunlight, ±2°C of difference at midday
Temperature is colder under the nets during the night
<table>
<thead>
<tr>
<th>Action</th>
<th>Target</th>
<th>Date</th>
<th>Product(s)</th>
<th>PFI</th>
<th>ECO50</th>
<th>TNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>FUNGICIDE</td>
<td>Bacteriosis</td>
<td>09/10</td>
<td>BB RSR</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13/11</td>
<td>BB RSR</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>18/03</td>
<td>BB RSR</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Monilia flowers</td>
<td>18/04</td>
<td>Horizon Arbo</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Monilia fruits</td>
<td>24/05</td>
<td>Switch</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10/06</td>
<td>Rovral AF</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>16/06</td>
<td>Rovral AF</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>INSECTICIDE</td>
<td>Black aphid</td>
<td>19/03</td>
<td>Ovipron plus + Karaté Zéon</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Flies</td>
<td>24/05</td>
<td>RogorPlus</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>03/06</td>
<td>Imidan 50WG</td>
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<td>X</td>
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<tr>
<td></td>
<td></td>
<td>10/06</td>
<td>Decis Protech</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>16/06</td>
<td>Karis</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>WEEDKILLER</td>
<td>Weeds</td>
<td>24/04</td>
<td>Glyphosate (3l/ha)</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Surflan (6l/ha)</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

**CHEMICAL IFT (Treatment Frequency Index)**

| CHEMICAL IFT (Treatment Frequency Index) | 11,24 | 3,24 | 0,48 |

**GREEN IFT**

| GREEN IFT | 0,8 | 0,8 | 0 |
Interventions phytosanitaires

• The device nets + plastic cover allows to decrease strongly the phytosanitary treatments

• No treatment from blossom to harvest on the modality ECO50
  Only the 3 treatments against bacteriosis to secure the orchard and 1 preventive treatment against black aphid

• No chimical weeding on the modality ECO50, replaced with 2 mechanical weeding

→ Use of inputs decreased of 71%
Climatic conditions and season

- Cherry season hot and dry
  Heavy rain (80mm) just before the harvest

- Belge harvest: June 19th / Regina harvest: June 23rd

Rain
Mean humidity

Nets
Raw production (first year of full production)

- Lower charge on ECO50 than on PFI, due to a difference of pruning (pruning more severe so that trees hold under the net)

- Higher caliber on ECO50 (in particular Regina), due to lower charge
Flies activity

Number of adults caught

D. suzukii

R. cerasi

COST Cherry – Training school « Rootstocks and training systems » - 02 février 2016 - B. Dufaÿ
Flies damage

• Flies damage similar on PFI and ECO50, lower than untreated control

• A few *R. cerasi* damage on ECO50 due to a later closing of the nets. Nets have an efficiency of 100% against *D. suzukii*
Quality

- A lot of cracking on Belge, due to the strong thunderstorm on June 13\textsuperscript{th}
  The plastic cover allows to decrease cracking of 49%

- Others damage are mainly marking
## Cost of the material

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost € / m²</th>
<th>Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Alt’carpo [4x4]</td>
<td>0.32 €</td>
<td>Mature market</td>
</tr>
<tr>
<td>Net Alt’fly [4x5]</td>
<td>0.54 €</td>
<td></td>
</tr>
<tr>
<td>Net <em>D. suzukii</em> [6x6]</td>
<td>0.70 €</td>
<td>Not mature market</td>
</tr>
<tr>
<td>Net <em>D. suzukii</em> [6x6] + plastic cover</td>
<td>1.15 €</td>
<td></td>
</tr>
</tbody>
</table>

→ For 1ha, device [net + plastic cover] = 35 000 €
   
   For 1ha, net = 23500€
Conclusions

Strong decrease of inputs using, objective of -50% reached

ECO50 system allows the same protection than PFI system

ECO50 system need to be evaluated under difficult climatic conditions

Need of a technic-economical analysis multiannual for validate the profitability of a protection by nets
Net cost is significant