Protecting organic fruit trees from direct rain and sun

Sustainable pest management and maintenance of fruit yield

- Fruit trees grown in orchards are highly nursed to maintain a specific growth structure for optimal yield and maintenance

- Maintenance includes heavy spraying protocols to avoid fungal diseases both in conventional and organic orchards

Hypothesis

- By shielding the trees it will be possible to reduce leaf and fruit wetness and thereby limit fungal infections, maintenance will also be lowered

- However, rain shields may affect the photosynthetic yield due to reductions in light intensity

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Photosynthesis and yield of shielded apples (2012-2015)

- The rain shields protect the photosynthetic apparatus from high solar irradiance
- Midday depression is avoided
- Yield is maintained/increased in apples

<table>
<thead>
<tr>
<th>Year</th>
<th>Unsprayed</th>
<th>Shielded</th>
<th>Sprayed</th>
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</thead>
<tbody>
<tr>
<td>2012</td>
<td>3.4 t/ha *</td>
<td>44.6 t/ha</td>
<td>38.1 t/ha</td>
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<td>2013</td>
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<td>2014</td>
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<td>2015</td>
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**Red Elstar 2012**

**Santana apples**
Leaf wetness and scab infections in apple (2014-2015)

15 hours of leaf wetness in warm temperatures is ideal conditions for scab infection caused by the fungus *Venturia inaequalis*.
Perspectives for shielded production of organic fruit in orchards and Green Cities

- The concept of urban farming is not new

- We could think of shielded corridors/walls/city halls and roads with fruit trees

- Challenges
  - Pollination/windfall fruit/air pollution/labour intensive harvesting
  - Cost of implementing orchards in the city orchards or free fruit for picking
  - Cost of Space and logistics
  - Will people eat the fruit or just leave it