Fruits and vegetables are highly perishable commodities due to high moisture content and higher metabolic activities.
Post-harvest procedures

As a result, about 25 to 30 per cent of the production is lost after harvest
The aim of BAPs in postharvest is the reduction of postharvest losses of fruits and vegetables making them available for longer period in the market.
Postharvest loss:
Is defined as any change in the quality or quantity of the product after harvest that decreases its value.

The losses may range from slight defects to total loss of the produce!

POSTHARVEST LOSSES MAY OCCUR AT DIFFERENT STEPS DURING THE MARKETING CHAIN

1. at harvest: injuries, pressure damage
2. at the packinghouse: chemicals, brushes and wax damage
3. during storage: chilling injuries, decay, peel disorders
4. during transport: bruising, deformation, decay
5. at retail: decay, softening, wilting
6. at the consumers: decay, softening, wilting
... at harvest

A ripen fruit is a fruit much appreciated by consumers but it's more susceptible to damages and has to be harvested with more attention.

To protect the product from direct sun light, quick transport to the packinghouse.

.... at the packinghouse

The selection of fruit is another important step: trained personnel, the use of gloves, the cleaning of equipments can reduce wounds and pathogen infections.

The cleaning of bins is very important in order to avoid contamination with spore pathogens.

Minimize delays before pre-cooling. Uniform product’s cooling.
What's wrong with this picture?

Product quality at harvesting
The use of water as an handling medium spreads inoculum from soil debris and diseased fruits first of all for pathogens like *Penicillium*, *Botrytis*, *Monilinia* that are wound pathogens and that can easily penetrate into fruits trough macro- and microwounds.
WOUNDING BY THE STEMS
... during storage

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>Relative speed of spoiling</th>
<th>Shelf-life (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1,0</td>
<td>100</td>
</tr>
<tr>
<td>10</td>
<td>3,0</td>
<td>33</td>
</tr>
<tr>
<td>20</td>
<td>7,5</td>
<td>13</td>
</tr>
<tr>
<td>30</td>
<td>15,0</td>
<td>7</td>
</tr>
<tr>
<td>40</td>
<td>22,5</td>
<td>4</td>
</tr>
</tbody>
</table>

- At temperatures above the optimum, the rate of deterioration increases 2 to 3 fold for every 10°C rise in temperature.
- High temperature increases the transpiration rate.
…… during storage

Store the product at optimum temperature conditions.
Ship to market as soon as possible.

<table>
<thead>
<tr>
<th>Specie</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Gala’ group</td>
<td>-0.5° - +0.5°C</td>
</tr>
<tr>
<td>‘Golden’ group</td>
<td>0.5° - 1.5°C</td>
</tr>
<tr>
<td>‘Pink Lady’</td>
<td>1.5° - 2°C</td>
</tr>
<tr>
<td>Pear</td>
<td>1° - 0°C</td>
</tr>
</tbody>
</table>

…… during transport

Use refrigerated loading area.
Cool truck before loading.
Load pallets towards the center of the truck.

Avoid delays during transport.
Monitor product temperature during transport.
Post-harvest procedures

1. Harvesting
2. Pre-cooling
3. Selection, cleaning and disinfection
4. Grading
5. Packing and packaging
6. Storage
7. Other treatments
8. Transport

At harvest the fruits were divided in two different classes of maturity. They seem the same, but for DA-index are different.
**CONCLUSIONS**

1. BAPs are fundamental to reduce postharvest fruit losses and keep an high quality of fruits

2. BAPs could be easy to adopt, but they are not always adopted

3. Before storage, the use of AD-meter allow to select asymptomatic lots of fruit with high or low percentage of infections of brown rot or lenticel rot

4. The use of HW treatment can reduce the infections of *Monilinia* and *P. vagabunda*. The treatment is safe for consumers and sustainable for enviroment