REDUCING WASTE IN THE FOOD CHAIN

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Common sense is not so common”
Voltaire
Waste in the food and drink supply chain

Source: WRAP, September 2013

Shows estimates of waste in the food and drink supply chain
How do reduce Food Waste in the Food Chain?

• Awareness
• Technology
• Monitoring
Lovely colourful picture, but showing tomatoes piled too high in rough wooden containers. Tomatoes too deep in direct sun, losses probably close to 40-50%.

Not as pretty. Smooth washable crate with shallow layer in shade, lifted off the ground.
Strawberries bought in the supermarket

Blue is the punnet air temperature, other lines are in the strawberry pulp

- 2 supermarket bags with a punnet of strawberries + 1 kg bags of potatoes, carrots and apples put in car boot at right angle to sun.
- Then covered with sheet & 45 minutes later driven 5 kms and placed in a domestic fridge.
- Result was a rise in temperature of strawberry flesh by 12°C
Potato Storage

- Sometimes accidents happen. The black and white mass was potatoes.
- The smell was “pungent”
- Sprouting can also be a challenge
Are sprouted potatoes dangerous?

- Approximately 50% chance of some potato sprouting when bakers are bought in the supermarket and stored in the dark for one week at 10°C
- Concern that they are poisonous and thrown out. THEY ARE NOT!
- Bread & potatoes biggest items in food waste
- Education, information on label?
Packaging must perform its function,
Reducing packaging quantity (weight) is only good if it still protects the product. 450g of salad compresses the punnet and the tomatoes.
Heat Leakage or Inflow

- Thermal image from the inside of the door of a ship refrigerated container set at 4°C - ambient 22°C
Strawberries - Rots and Moulds

Strawberry
Chilled supply chain with structured ambient breaks

Ethylene “scavengers” aggressively remove ethylene which inhibits mould and rots.
Fruit in this trial had had a 12 hour break in the supply chain at room temperature (18-20°C).
Monitor what is happening

Monitoring damage levels

Monitoring temperature of product
Trends – intelligent use of existing data

- A series of consignments during cooling and transport.
- The differences can be seen between the satisfactory and the problems.
## Control Systems – Remote access

<table>
<thead>
<tr>
<th><strong>Outside</strong></th>
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<tbody>
<tr>
<td>Outside temperature</td>
<td>3.3 °C</td>
</tr>
<tr>
<td>Outside RH</td>
<td>74 %</td>
</tr>
<tr>
<td>Outside dew point</td>
<td>-0.9 °C</td>
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<table>
<thead>
<tr>
<th><strong>Room</strong></th>
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<tbody>
<tr>
<td>Average room temperature</td>
<td>11.6 °C</td>
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<table>
<thead>
<tr>
<th><strong>Product</strong></th>
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<tbody>
<tr>
<td>Average product temperature</td>
<td>11.6 °C</td>
</tr>
<tr>
<td>Product temperature difference</td>
<td>0.7 °C</td>
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<tr>
<td>Average product RH</td>
<td>81 %</td>
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<tr>
<td>Product dew point</td>
<td>8.3 °C</td>
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</table>
THANK YOU FOR YOUR ATTENTION

Any questions?

“...looks like your order has been bumped...”