Harnessing losses in the food industry to produce high quality food

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Polish Association of Juice Producers

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Tuxtla Gutierrez, Mexico
Polish Association of Juice Producers (KUPS) is an industry, non-profit organization supporting balanced cooperation between producers of concentrated juices, juices, nectars, as well as fruit and vegetable producers and scientific institutes, research laboratories, suppliers of intermediate products, machines and packaging as well as government and EU organizations and institutions.

- **42 KUPS Members**
  - Producers of final products (juices, nectars and drinks)
  - Producers of Fruit and Vegetables
  - Producers of raw materials (concentrated fruit and vegetables juices / puree)
  - Research Institutes
  - Producers of packages and industrial equipment

- Members of KUPS cover about 70% of concentrate juice, juice and nectar market in Poland
- KUPS is a member of SGF, AIJN, EQCS
- Range of activity of Polish Association of Juice Producers includes industrial self-control system – called: „Voluntry Control System for Juices and Nectars” (DSK)
- Website: [www.kups.org.pl](http://www.kups.org.pl)
# Wasted food (in kg per capita, annually)

<table>
<thead>
<tr>
<th>Country</th>
<th>Wasted Food (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Netherlands</td>
<td>556</td>
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<tr>
<td>Belgium</td>
<td>370</td>
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<tr>
<td>Cyprus</td>
<td>301</td>
</tr>
<tr>
<td>Estonia</td>
<td>269</td>
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<tr>
<td>Poland</td>
<td>236</td>
</tr>
<tr>
<td>Ireland</td>
<td>222</td>
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<tr>
<td>UK</td>
<td>220</td>
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<tr>
<td>Austria</td>
<td>213</td>
</tr>
<tr>
<td>Sweden</td>
<td>208</td>
</tr>
<tr>
<td>Lithuania</td>
<td>201</td>
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<tr>
<td>Hungary</td>
<td>189</td>
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<tr>
<td>Finland</td>
<td>184</td>
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<tr>
<td>Luxembourg</td>
<td>168</td>
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<tr>
<td>Spain</td>
<td>165</td>
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<tr>
<td>Italy</td>
<td>144</td>
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<tr>
<td>France</td>
<td>135</td>
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<tr>
<td>Portugal</td>
<td>134</td>
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<tr>
<td>Germany</td>
<td>126</td>
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<tr>
<td>Romania</td>
<td>115</td>
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<tr>
<td>Denmark</td>
<td>112</td>
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<td>Latvia</td>
<td>109</td>
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<td>Slovakia</td>
<td>108</td>
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<tr>
<td>Bulgaria</td>
<td>94</td>
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<tr>
<td>Slovenia</td>
<td>86</td>
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<tr>
<td>Czech Republic</td>
<td>69</td>
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<tr>
<td>Malta</td>
<td>57</td>
</tr>
<tr>
<td>Greece</td>
<td>45</td>
</tr>
</tbody>
</table>

Source: European Commission

Food waste in consumption (kg per capita annually)

Source: European Commission

Where in the EU food is most wasted

Source: Fusions EU
What is included in this 19%?

- Meat products
- Milk products
- Cereals products (bread)
- Fruit
- Vegetables
- Fruit and Vegetable products
What is included in this 19%?

approx. 30% of Poles admit to wasting food

the most thrown away food

- 43%
- 36%
- 32%
- 27%
- 23%
- 20%
- 17%
- 13%
- 12%
- 8%
- 8%
- 4%
- 3%

What is the impact of a food waste

Consumption of water resources (Agriculture is responsible for 70% water use throughout the world)

Consumption of energy resources (i.e. oil)

Storage of food waste (Landfills are source of changing climate methane)

What is included in fruit and vegetable waste during production process

• Seeds
• Peel from vegetables and fruit
• Fruit and Vegetables Pulp / Pomace
• Underquality fruits
• Underquality vegetables
• Fruit and vegetables waste
What could possibly go wrong? Poland 2018 – case study

2017
- Poor harvest of fruit due to weather conditions

2018
- Extremaly good harvest of fruit due to weather conditions in Poland and countries in our region

High demand on fresh fruits and fruit for processing
Higher prices of Fruit
Companies buying all available production of fruit
Agricultural industry happy with 2017 income
Almost all fruit harvest has been sold

Low demand on fresh fruits and fruit for processing because of overproduction
Lower prices of Fruit
Companies buying to fulfill they production and sellign capabilities (Trade and processing)
Agricultural industry is afraid of possible bankrupcy
Huge amount of fruit harvest has n't been sold (Possible waste)
What could possibly go wrong?
Poland 2018 – case study

2018 Total Apple Production: **4,5 – 5 mln tons**
Population of Poland: 38 mln

**APPLE CONSUMPTION:**
11,5 KG
person / year

Apple consumption in Poland: 400 000 tons

LOCAL CONSUMPTION (0,4 mln tons)

EXPORT (1 mln tons)

FRUIT PROCESSING
(3 mln tons)
What could possibly go wrong? Poland 2018 – case study

What are the reasons:

• Changes in climate
• Weather conditions (unpredictable weather)
• Types of planting (more apples for consumption, less apples for processing industry) – agricultural workers don’t want to sell consumption apples for processing apple prices
• Fragmentation of agricultural producers
• Lack of diversification in types of planting
• Lack of production planning
How can we deal with overproduction (and possible waste)

• Creating new products – building market demand on products made of fruit and vegetables

• Changing types of planting (shift from consumption apples to apples for processing) – lower cost of production of plants

• Cooperation between agricultural producers and processing industry

• Changing ways of thinking – fruit and vegetables are common good which should be object of interest for, not only agricultural workers, but also for industry, trade, customers and government

• Food processing – taking advantage of processed fruit and vegetables

• And...
Communication, communication and communication

• Fruit and vegetables are healthy
• Not pretty (ugly) fruit and vegetables are still healthy
• And they are probably cheaper! In store
• Eat locally produced fruit and vegetables and help local agricultural workers
• Fruit and vegetables CANNOT BE replaced with anything! (Pills and supplements)
• Processed fruit and vegetables could be also healthy (with no added sugar, preservatives, colorings, etc.)
What are benefits of processed fruits and vegetables?

• Low costs of storage of processed fruit (i.e. processed apples)
• Longer product expiry date
• Processing industry helps managing apples production (overproduction)
• Wide scope of products made of fruit and vegetables – juices, salads, puree, mousses, yogurt with fruits, etc.
• Possibilities to create new products from fruits and vegetables – food of the future – Smart foods
• Easier to carry and consume in work or school
What could be produced from fruit and vegetable „waste”

<table>
<thead>
<tr>
<th>Pomace</th>
<th>Seads</th>
<th>Other</th>
<th>Factory improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit Tea</td>
<td>Cosmetic oils</td>
<td>Dietary supplements</td>
<td>Burning of pomace (cellulose) – closed production circuit in the plant</td>
</tr>
<tr>
<td>Pigments</td>
<td>Cosmetic oils (raspberry and strawberry seeds)</td>
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<tr>
<td>Briquette (for fireplace)</td>
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<tr>
<td>Feed for pets (dried pomace)</td>
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<td>Pectin (apple)</td>
<td></td>
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<tr>
<td>Carotenoids (carrot/carrot juice)</td>
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Apple Fiber as an Ingredient

- Additional fiber content in prepared food products
- A substitute for modified food starches
- Gluten free food production
- Increasing the amount of NATURAL ingredients in a food product
- Greening their label
How Polish students want to deal with Food waste (Food Waste Hackathon Poland)

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foodbank Challenge</td>
<td>Team created a system for donors to electronically add input of the amounts of food for donation. It is like an online shop for donated food with the aim to reduce the time needed in foodbanks to keep stock of the food to distribute the information.</td>
</tr>
<tr>
<td>Home composting challenge</td>
<td>Team created a website to educate people about the potential of reusing food waste in home composting, uniting communities to be more ambitious about food waste, reducing the amount of food waste in municipality waste.</td>
</tr>
<tr>
<td>Foodsharing</td>
<td>Bla Bla Food (like Bla Bla Car) An app for individuals to share food with each other. It is like an onlineshop where everything is for free. Where people can add and take food and be food saving heros.</td>
</tr>
<tr>
<td>Hotel Challenge</td>
<td>An app to help the hotel to reduce food waste by asking the guest to download an app when they connect with the WIFI to use this hotel app to share their food preferences with the hotel, so that they can plan accordingly. Guest will receive rewards for sharing the information with the hotel.</td>
</tr>
</tbody>
</table>
Is it possible to reduce „waste” to zero?

• Building awarness of benefits of consumption fruit and vegetables
• Advanced production methods of fruits and vegetables
• Creating new products
• Building market demand for new products
• Cooperation between Agricultural production and Processing Industry
• Planing fruit and vegetables production in context of possible demand for product
• Eating even „ugly” fruit and vegetables
• Inspire students and scientists to create new ideas for fruit and vegetable waste
• Share food with people in need
• Be active consumer of local products
Thank You!

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