FoodCASE Training
Theoretical Part: What is FoodCASE

Karl Presser
Agenda

Explain FoodCASE with landscapes
• Application Landscape
• Food Data Landscape
• Food Composition Landscape
• Owner and User Landscape
FoodCASE

- FoodCASE
  = „**Food Composition And System Environment**“ -> „**Food Content And System Environment**“?

- Software for the management of food information
Application Landscape

Compiler Side:

- Compiler Data reader
- Super user

Food Compilation Application

FoodCASE Server

Admin Application
### Single value detail

**Food**
- **Single Food ID**: 376
- **Name**: Apfel, roh
- **English Name**: Apple, fresh

**Component name**: protein, total
- **Selected value**: 0.3
- **Unit**: (g) gram
- **Value type**: value type not known
- **Matrix unit**: (W) per 100g edible portion

**Food info**
- **Manufactured Prepackaged Food**
  - **Brand Name**:
  - **Commercial Name**:
  - **Generic Name**:

**Classification**
- **EuroFIR Classification**:
- **Retention Factor Classification**:
- **Eurocode2 Classification**:

**Properties**
- **Acquisition type**: Food composition table
- **Method type**: method type not known

**Statistics**
- **Mean**
- **Median**
- **Minimum**
- **Standard deviation**
- **Maximum**
- **Standard error**

**Date**
- **Year of generation**
- **Further generation date info**
- **Date of compilation**
- **Compilation by**
- **Date of evaluation**
- **Evaluation by**

**Data quality evaluation**
- Method type: Selected entry unknown decreases data quality.
- Quality Index: Either the quality index questions or the additional questions are not answered. Data quality is decreased.
- Samples: At least one sample should be provided. Data quality is decreased.
Application Landscape

Server Side:

FoodCASE Server (JBossAS/EJB3) -> Database (PostgreSQL) -> FoodCASE Server (JBossAS/EJB3) -> Database (PostgreSQL)
Application Landscape

Web/Publication side:

FoodCASE Server (JBossAS/EJB3)

Web Server Component

SOAP (FDTP)

RESTful (FDTP)

Internet
<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein</td>
<td>0.3g/100g</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>5mg/100g</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Food</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple, fresh</td>
<td>1 piece</td>
</tr>
<tr>
<td>Pear, fresh</td>
<td>1 piece</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mercury</td>
<td>0mg/100g</td>
</tr>
<tr>
<td>Selenium</td>
<td>0mg/100g</td>
</tr>
</tbody>
</table>

Food Name

Apple, fresh
Pear, fresh

Person

Person1
Person2
Food Composition Landscape

<table>
<thead>
<tr>
<th>Data Source</th>
<th>Initial Data</th>
<th>Aggregated Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Apple</td>
<td>Apple</td>
</tr>
<tr>
<td></td>
<td>Protein 0.3 g/100g</td>
<td>Protein 0.35 g/100g</td>
</tr>
<tr>
<td></td>
<td>Protein 200 mg/50g</td>
<td>Fat 0.3 g/100g</td>
</tr>
<tr>
<td></td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td>Pear</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Protein 0.4 g/100g</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fat 0.3 g/100g</td>
<td>Energy 231.9 kJ/100 g</td>
</tr>
<tr>
<td></td>
<td>...</td>
<td></td>
</tr>
</tbody>
</table>

ENERCJ[kJ] = 17*PROT[g] + 17*CHO[g] + 37*FAT[g] + 29*ALC[g] + 13*OA[g] + 10*POLYL[g]
### Food Composition Landscape

#### Aggregated Data

<table>
<thead>
<tr>
<th>Apple</th>
<th>Protein 0.35 g/100 g</th>
<th>Fat 0.3 g/100 g</th>
<th>Energy 231.9 kJ/100 g</th>
</tr>
</thead>
</table>

#### Recipe Data

<table>
<thead>
<tr>
<th>Apple Pie</th>
<th>Protein 2.68 g/100 g</th>
<th>Fat 4.86 g/100 g</th>
<th>Energy 560 kJ/100 g</th>
</tr>
</thead>
</table>

#### Calculation

\[ \sum_{i=1}^{n} w_i \times \text{value}_i \times \text{rf} \times \text{yf} \]

#### Borrowing

- Unit conversion
- Matrix unit conversion
- Retention factors for vitamins and minerals
- Yield factors for water, alc and fat
### Aggregated foods

<table>
<thead>
<tr>
<th>Databases</th>
<th>Aggrega...</th>
<th>Databases...</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>681</td>
<td>627</td>
<td></td>
<td>Apfelmus, gezuckert (Konserv)</td>
</tr>
<tr>
<td>682</td>
<td>628</td>
<td></td>
<td>Apfelmus, ungezuckert (Konserv)</td>
</tr>
<tr>
<td>383</td>
<td>378</td>
<td></td>
<td>Apfel, roh</td>
</tr>
<tr>
<td>611</td>
<td>568</td>
<td></td>
<td>Apfelsaft</td>
</tr>
<tr>
<td>15030</td>
<td>6548</td>
<td></td>
<td>Apfelsaft ab Presse (Migros)</td>
</tr>
<tr>
<td>14281</td>
<td>6548</td>
<td></td>
<td>Apfelsaft ab...</td>
</tr>
</tbody>
</table>

### Aggregated components Apfel, roh

<table>
<thead>
<tr>
<th>Databases</th>
<th>Component...</th>
<th>Code</th>
<th>Component...</th>
<th>Value</th>
<th>Unit</th>
<th>Matrix Unit</th>
<th>Value Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>82620</td>
<td>energy kcal</td>
<td>ENERCal</td>
<td>Proximates</td>
<td>54.9</td>
<td>kcal</td>
<td>W</td>
<td>weighted</td>
</tr>
<tr>
<td>8631</td>
<td>energy kJ, t.</td>
<td>ENERkJ</td>
<td>Proximates</td>
<td>231.9</td>
<td>kJ</td>
<td>W</td>
<td>weighted</td>
</tr>
<tr>
<td>8604</td>
<td>fat, total</td>
<td>FAT</td>
<td>Fats</td>
<td>0.3</td>
<td>g</td>
<td>W</td>
<td>weighted</td>
</tr>
<tr>
<td>8601</td>
<td>fatty acids</td>
<td>FAMS</td>
<td>Monounsatu...</td>
<td>0.02</td>
<td>g</td>
<td>W</td>
<td>weighted</td>
</tr>
</tbody>
</table>

### Contributing single values of Apfel, roh

<table>
<thead>
<tr>
<th>Databases</th>
<th>Component...</th>
<th>Code</th>
<th>Component...</th>
<th>Value</th>
<th>Unit</th>
<th>Matrix Unit</th>
<th>Quality I...</th>
</tr>
</thead>
<tbody>
<tr>
<td>5772</td>
<td>alcohol</td>
<td>ALC</td>
<td>Proximates</td>
<td>0</td>
<td>g</td>
<td>W</td>
<td>7.0</td>
</tr>
<tr>
<td>38555</td>
<td>all-trans ret...</td>
<td>RETOLAT</td>
<td>Proximates</td>
<td>0</td>
<td>ug</td>
<td>W</td>
<td>7.0</td>
</tr>
<tr>
<td>36551</td>
<td>all-trans ret...</td>
<td>RETOLATE</td>
<td>Vitamin A an...</td>
<td>0</td>
<td>ug-RE</td>
<td>W</td>
<td>7.0</td>
</tr>
<tr>
<td>36554</td>
<td>alpha-carot...</td>
<td>CARTA</td>
<td>Carotenoids</td>
<td>20</td>
<td>ug</td>
<td>W</td>
<td>7.0</td>
</tr>
<tr>
<td>36555</td>
<td>beta-carote...</td>
<td>CARTB</td>
<td>Carotenoids</td>
<td>26</td>
<td>ug-BCE</td>
<td>W</td>
<td>7.0</td>
</tr>
<tr>
<td>36556</td>
<td>beta-crypto...</td>
<td>CRYPTB</td>
<td>Carotenoids</td>
<td>4</td>
<td>ug</td>
<td>W</td>
<td>7.0</td>
</tr>
</tbody>
</table>
Food Composition Landscape

Apple pie

Apple, fresh  Wheat  Salt  Water  ...  Calcium

Dough

update  update  update  update  update
FoodCASE Playground

http://playground.foodcase.ethz.ch

FoodCASE Playground Environment

By downloading or starting any of the programs on this webpage, you fully agree to the terms on the license agreement.

Compiler Tools (FoodCASE V2.0.0 RC6 with new server):
Please note that FoodCASE version 2.0.0 with new server is a release candidate and is currently tested. Its full functionality is not yet approved. FoodCASE version 2.0.0 uses JBoss AS 7.1.1 on the server side. Therefore, port 4447 needs to be open for the ETH server 129.132.165.213.

Compiler Client
Administration Tool

Public Webpages:
FoodCASE Playground Website
FoodCASE manuals

- http://playground.foodcase.ethz.ch
- User manual for data compilation
- User manual for administration
- Prepared by EuroFIR (based on FoodCASE V1.4.5)
Owner and User Landscape

Owner and research works: ETH Zurich

Maintenance, support and new features: Premotec GmbH

Main user group: Compiler organisations and EuroFIR
Owner and User Landscape

- FoodCASE is free for EuroFIR member organisations
- Maintenance and support agreement with EuroFIR
- Source code available for FoodCASE users
- EuroFIR FoodCASE working group
- Shared development and funding of new features
System.out.println("Do you have questions?");