How to implement electronic chain traceability
- The TraceFood Framework

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Contents

- Short project history
- Implementation steps
- Specific TraceFood Framework recommendations
- Tools
TraceFish logo
History of TraceFish and TraceFood

Standardization projects / initiatives

Fish and seafood

TraceFish (TraceFish XML)

Uses, refines

Seafood Plus

Similar structure and content, but generic for food

Implementation projects

Norway

Norway

Denmark

UK

Japan

Food in general

TraceFood (TraceCore XML)

Initial definition

TRACE

Uses

Petter Olsen 23/04/08 - © Nofima Market - May be copied if source is acknowledged
Seafood Plus and Telop Trace projects

- The first ever automated global traceability chain in the food industry
Tracing the origin of food: TRACE

- Overall objective:
  Delivering integrated traceability systems that will enhance consumer confidence in the authenticity of food

- Focus on 5 types of food
  - Mineral water
  - Honey
  - Chicken from China
  - Seafood

- Objective for the SINTEF traceability activities in the project:
  - To specify, develop and test a generic information infrastructure to ensure complete traceability along entire fork to farm food chains.
  - To develop an information platform mapping verifiable data to analytical methods specifications and thresholds.
  - To develop 'Good Traceability Practice' guides for the food industry

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www.trace.eu.org
TraceFood Framework
– toolbox with principles and guidelines
Premise for the rest of this presentation

- Dealing with chain traceability, where 2 or more companies in a cluster exchanges information

- Intention to re-use of data
  - Use of electronic systems (capture, recording and transmission)

- Need for standardization
  - Terminology
  - Identyfiers
Implementation of chain traceability - industry level

- Industry analysis
  - Typical material flow
  - Typical information flow and information handling practice

- Industry terminology – recommendation of changes
  - Map existing terminology (trade, food safety, traceability)
  - Recommend new industry sector terminology
  - Recommend what data to be recorded in each link

- Industry material flow practice
  - Recommend changes (batch size, mixing, etc)

- Example: The TraceFish standards
Implementation steps  
- enterprise level

1. Basis:  
   - Industry terminology and data recording recommendations (TraceFish, TraceHoney, etc)  
   - General GTP recommendations (see TraceFood wiki)  
2. Kick off meeting in business cluster  
   - Select product, level of ambition, etc – Think simple!  
3. Process mapping of selected product  
   - Material flow  
   - Information flow, what is recorded today, chain demands  
   - What is a typical traceable unit  
   - Tool – TraceFood Process mapping method  
   - Result 1: recommendations for changes in information handling practice  
   - Result 2: recommendations for changes in material flow  
     - Batch size, definition of traceable unit  
     - Less/more mixing, etc
Implementation steps (cont.)

5. Identification of traceable unit
   - Introduction of unique ID for selected product and corresponding input factors
   - TraceFood: GTIN+
   - Internal vs external application

6. Data recording routines
   - Types of data
   - Stages for data recording
   - Recording av ID of raw materials and input factors
   - Recording of transformation
   - Recording of product related data
     - Species, net weight/quantity, producer, receiver, temperature history
     - Others
   - See TraceFood wiki
Implementation steps (cont.)

6. Mapping of information systems and data capture practice
   - Recommendations for changes in practice

7. Implement changes in software or new software for data recording and management of information

8. Electronic exchange of data
   - EPCIS XML (Trace Core), See TraceFood wiki
TraceFood Framework

The TraceFood framework components

Principle for unique identification

Principle for documentation of joining and splitting of units (Transformation)

Generic guidelines of implementation (GTP)

Generic language for electronic interchange (TraceCore XML)

Sector-specific guidelines for implementation (GTP)

Sector-specific language for electronic interchange
1. TraceFood: Industry terminology and data recording recommendations

Sporbarhet av fiskeprodukter
Spesifikasjon for informasjonsregistrering av oppdrettsfisk
Traceability of fishery products
Specification of the information to be recorded in farmed fish distribution chains

Sporbarhet av fiskeprodukter
Spesifikasjon for informasjonsregistrering av villfanget fisk
Traceability of fishery products
Specification on the information to be recorded in captured fish distribution chains
1. TraceFood: The TraceFish standards - voluntary industry standards

CEN (WA) standards specifies:

- Which data to be recorded in the captured fish chain
- Which data to be recorded in the farmed fish chain
- ISO standardization going on (ISO 12875 and ISO 12877)
5. TraceFood: Unique identification of traceable unit

- TraceFood require global unique ID of traceable unit: called Trade Unit: GTIN + (or GS1 SGTIN)

- GTIN + (unique ID on Trade Unit)
  - GTIN
  - Batch Number
  - Serial Number

<table>
<thead>
<tr>
<th>Description</th>
<th>EAN identifications</th>
<th>EAN AI</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade unit</td>
<td>GTIN</td>
<td>AI (01)</td>
<td>(01)17030640000016</td>
</tr>
<tr>
<td></td>
<td>Batch number</td>
<td>AI (10)</td>
<td>(10)1234567cc01dd4kk7890</td>
</tr>
<tr>
<td></td>
<td>Serial number</td>
<td>AI (21)</td>
<td>(21)01234567891011121314</td>
</tr>
</tbody>
</table>
6.1 Types of information

Traceability information

Transformation information
- Identification
- Transformation relations

Product information
- Origin
- Processing history
- Location
# 6.2 TraceFish Data recording sheet

### Table 3 — Detailed information requirements for fish farms

<table>
<thead>
<tr>
<th>Data element</th>
<th>Description</th>
<th>Examples</th>
<th>Categorisation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FISH FARMS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FFF01 Food business ID</td>
<td>Name and address or GLN (n3+n13) of food business that operates fish farm establishment</td>
<td>Fjord Harvest Ltd 67345 Bergen Norway</td>
<td>x</td>
</tr>
<tr>
<td>FFF02 Fish farm establishment ID</td>
<td>Name, address and registration number or GLN (n3+n13) of fish farm establishment</td>
<td>Fjord Harvest Ocean site 2 67345 Bergen Norway NTFS0903 NO</td>
<td>x</td>
</tr>
<tr>
<td>FFF03 Fish farm GMP certification</td>
<td>Names of fish quality or food safety GMP schemes by which fish farm is certified</td>
<td>Debio</td>
<td></td>
</tr>
<tr>
<td><strong>FOR EACH UNIT RECEIVED</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Identities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FFF04 Unit ID</td>
<td>SSCC (n2+n18) (if received as a logistic unit) or GTIN+ (n2+n14+AI's) (if received as a separate trade unit)</td>
<td>GTIN+: (01) 0701234500001 (10) 0000000126</td>
<td>x</td>
</tr>
<tr>
<td>FFF06 Trade unit IDs</td>
<td>If received as a logistic unit, the IDs of the trade units within the logistic unit. List of GTIN+, (n2+n14+AI's)</td>
<td>List of GTIN+</td>
<td></td>
</tr>
<tr>
<td><strong>Source</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FFF06 Previous Food Business ID</td>
<td>Name, address or GLN (n3+n13) of previous food business from whom the unit was received. (Hatchery or transporter, etc.).</td>
<td>Salmogen Breeding station 1 1234 Trondheim Norway</td>
<td>x</td>
</tr>
<tr>
<td>FFF07 Date and time of reception</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Control checks (either logistic or separate trade units)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FFF08 Temperature check</td>
<td>Temperature °C i.e. in received unit</td>
<td>4.0 °C</td>
<td></td>
</tr>
</tbody>
</table>
6.3 Stages were information recorded and linked to unique ID

1. When raw materials and ingredients arrives at your food business

2. When raw materials and ingredients goes into your production

3. When produced units leaves your food business
6.4 TraceFish: Recording of transformations - premise for chain traceability

- A standard method for keeping track of splitting and merging of units, thus input units are linked to created units in a documented manner, which further more are linked to dispatched units (both ways; related created units and related received units). This means that internal traceability is taken care of.
6.4 Transformations - examples
6.4 Documentation of internal and external transformations

Internal batch vs. external trade unit
6.5 Recording of property related information

- To be able to access product information, property related information must be recorded and linked to the traceable unit.

- Product information
  - Origin
  - Process history
  - Locations/distribution route

- Importance of data elements categorized by shall, should and may
6.6 Shall, Should, May categories

- **”Shall”** includes information vital to make chain traceability possible
  - i.e. Food business ID, Trade Unit ID (fish, feed, etc), Date and time of reception, Net weight, Next food business ID, Date and time of Dispatch

- **”Should”** includes information required by legislation, supermarkets, in Good Manufaturing Practice guidelines, etc
  - i.e. Location of Fish farm, Size distribution, Starving period, Disease record

- **”May”** includes other information which frequently is recorded and exchanged
  - Fat content, Colour, Average weight, Treatment record
TraceFood tools

- Method for food chain process mapping

- "Method" for development of industry terminology
  - Data recording forms
  - See; TraceFish, TraceHoney, etc

- "Method" for development of industry GTP`s

- Standard electronic data exchange format
  - TraceCoreXML (EPCIS XML format), See TraceFood
TraceFood Wiki based website - http://www.tracefood.org
Conclusion

- TraceFood Framework and the wiki gives specific guidance and recommendations for those who want to implement food chain traceability