Traceability and Food Quality: A Progress Report

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Content

1) Objectives

2) Basic Considerations

3) Assessment of Canadian traceability regulation and initiatives

4) Outlook on future research
Objectives

   ⇒ current state of traceability
   ⇒ government/industry initiatives
   ⇒ need for trilateral standards
   ⇒ impact on market integration

2) For this presentation:
   - Thoughts on framework for assessment
   - Looking beyond to further research (information economics and signalling traceability and assurance)
Basic considerations: Value proposition drives the cost model

Drivers / Benefits
- Risk Management/Disease Control
- Operations Management
- Supply Chain Management
- Market Enhancement/Product Differentiation
- Compliance/Governance
- Sustainability

Cost
- Documenting/Monitoring Agency
- Technology/data usage
- Verification (3rd party)
- Labelling/Signalling
- Completeness/Error rates
- Breadth
- Depth
- Precision

Dimensions
Basic considerations: Complete registrations

Even with 100% participation, completeness of Dutch sheep and goat tracing database is not 100% (Velthuis, A.G.J. 2007).

<table>
<thead>
<tr>
<th>Registration type</th>
<th>Sheep</th>
<th>Goat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correct</td>
<td>5,384,829</td>
<td>1,622,241</td>
</tr>
<tr>
<td>Wrong location</td>
<td>6,526</td>
<td>1,274</td>
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<td>More than one location</td>
<td>41,469</td>
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<td>Without location</td>
<td>3,739</td>
<td>623</td>
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<tr>
<td>Not registered</td>
<td>39,597</td>
<td>6,836</td>
</tr>
<tr>
<td>Administrative/fictitious</td>
<td>15,669</td>
<td>3,414</td>
</tr>
<tr>
<td>Total wrong</td>
<td>107,000</td>
<td>18,551</td>
</tr>
<tr>
<td>Percent wrong</td>
<td><strong>1.95%</strong></td>
<td><strong>1.13%</strong></td>
</tr>
</tbody>
</table>
Basic considerations: The Value of Speed


Scenarios depend on herd contact rates and rigidity of culling (clinical signs/contact).

![Graph showing scenarios and reduced tracking time](image)
Basic considerations: Other Standards

National/International standards/guidelines developed by:
Can-Trace
Codex Alimentarius
World Organization for Animal Health (OIE)
ISO 22005
GS1 (significantly influenced by Can-Trace)

Regulation
US: Golan et al. (2004) list 7 pieces of regulation (“select milestones”) that contain traceability requirements.
EU: 8 pieces of traceability legislation (not exhaustive)

Food Quality and Safety Assurance/Management
HACCP; ISO 9001:2000; ISO 14000; BRC; GAP; GMP; EUREPGAP
Assessment of Canadian traceability regulation and initiatives

Previous Studies:
Liddell, S. Bailey, D. (2001): Score Cards on Traceability, Transparency and Food Quality and Assurance in Pork Industries of Denmark (16), UK (15), Australia/New Zealand (13), Japan (11), Canada (9), US (7)

Souza-Monteiro, D.M., Caswell, J.A. (2004): Comparison of Beef Industries with regard to breadth, depth and precision amongst: EU, Japan, Australia, Brazil, Canada, Argentina, US

Highly aggregate measures of (potential) competitiveness. How accurately does it reflect signalling of traceability and quality assurance in export markets?

What are adequate types/sources of information?

One suggestion: Communication/advertising material.
Assessment of Canadian traceability initiatives

How to signal tracking, tracing and quality assurance?

Quality from those who are doing good.

...order our quality assurance manual.

Danish – As good as no other pork.
Assessment of Canadian traceability regulation and initiatives

Inventory of Initiatives (OnTrace 2007)

10 livestock
- Mandatory: Beef Cattle, Bison, Dairy Cattle, Sheep
- Voluntary: Veal (Ontario)
- In development: Goats, Hogs, Equine

Plus overarching initiatives/programs
- National Agri-food Traceability System (NAFTS)
  - Accessability to product-specific databases
  - National Livestock Traceability System (NLTS)
- OnTrace

Plus Government funded projects
Assessment of Canadian traceability regulation and initiatives

Assessing the purpose and impact of traceability initiatives
Country strategy for competitive advantage:
- Safe / highest standard ⇒ image
- Product differentiation
- Operation/Supply chain management efficiencies

Furthering Market Integration
- Avoiding overlap or conflict between regulation
- Exchange of information/definition of access rights
- Collaboration between private and public systems
- Mutual recognition / Collaboration in times of crises (Zoning)
Outlook on further research

Measurement of traceability levels and identification of determinants at firm, industry, regulatory levels
⇒ Based on dimensions outlined above
⇒ Communication/advertising material as approximation

Industrial Organization: Vertical coordination and

Traceability and Innovation: IT, rapid analysis methods, (molecular) tagging, linking with GIS/GPS

Information economics: Traceability and (reversal of?) information asymmetry