Adherence to traceability within the Halal supply chain

Dr. Heiner Lehr
International Technical Director
FoodReg
Who are we?

FoodReg

- Specialist provider of
  - Multi-standard compliance management solutions
  - Internal and external traceability solutions

- We help companies and governments
  - With our expertise in food, biofuels, standards and other claims
  - With our experience in the implementation of standards and systems

- Present in Europe and South East Asia

- Active in EU research
  - Coordinator of BrightAnimal on Precision Livestock Farming
Who are we?

- **yakin**  – *The Assurance of Halal Quality*

- **Supplier of IT solutions for the Halal industry**
- **Specialist consultants for**
  - Halal traceability
  - Halal and Toyyiban compliance
  - Halal standards and their implementation
- **Founded in 2006 by local business men**

**Client corner**

*Some of our involvements*

Our founders

Tan Sri Dr. Muhammad Rais bin Abdul Karim
Director, Yakin IT Sdn. Bhd.
Chairman, Malaysia Qualification Agency
Former Director General, Mampu

Tengku Farith Rithauddeen
Director, Yakin IT Sdn Bhd
Group CEO and Co-Founder of Skali
Former President of Technopreneur Association of Malaysia (TeAM)
Member of the National Innovation Council

Zakaria Merican Bin Osman Merican
Director, Yakin IT Sdn Bhd
Director, HSBC Bank Malaysia Bhd
Former Senior Executive Vice President, Bumiputra-Commerce Bank Bhd

Robert Madge
Director, Yakin IT Sdn Bhd
Founder and CEO, FoodReg AG and Xifrat AG
Member of International Advisory Panel to the Multimedia Super Corridor
Halal is special
## Halal consumers

<table>
<thead>
<tr>
<th>Desired</th>
<th>Expected</th>
<th>Required</th>
<th>Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Local</td>
<td>- Environmentally friendly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Organic</td>
<td>- Fairly produced</td>
<td>- Authentic</td>
<td>- Toyyiba/safe</td>
</tr>
<tr>
<td>- Animal welfare</td>
<td></td>
<td></td>
<td>- Halal</td>
</tr>
</tbody>
</table>

Producing Halal goods is not only a matter of business, it’s a promise. Muslim consumers globally depend on Halal claims being true for their spiritual well-being. Non-muslim consumers buying Halal want to be sure to consume the high quality they associate Halal with.
Limitations of the chain of trust

- Fraud
- Human error
- Lack of information
- Lack of knowledge
The particularities of Halal food

- Halal food is different
  - The spiritual aspect exempts it from a risk-management approach
  - Physico-chemical or microbiological tests are only being developed

- Two basic challenges
  - Certificate/label fraud
  - Doubtful certificate schemes
  - Misinterpretation of certification scheme rules

- There is a clear need for Halal assurance through traceability
  - The separation of the product flow from the information flow boosts labelling safety
The exchange of information
What is traceability?
What is traceability?

Traceability is

- An *infrastructure*, much like rails
- It connects inputs to outputs, like connecting stations on a railway
- A system of claims which need independent verification

Electronic traceability allows us to

- Transport specific information from A to B just-in-time
- Increase the barrier to fraud
- Connect producers to consumers
- Streamline operations within the company and along the supply chain
Drivers and barriers in adoption of traceability

- Implementation cost
- Lack of international standards
- Have to share data
- Operational cost
- Training of personnel
- Lack of premium for non-export food
- Lack of understanding
- Existing incompatible systems
- Consumer need for assurance
- Increased market access
- Improved stock management
- Automated supply chain
- Performance management
- Increased predictability
- Labour reduction
- Error avoidance
Halal Traceability
Different types of Halal traceability

A system for Good Halal Practices

RFID logistics
- Includes GDN and GRN, as well as RFID subsystem
- Increases efficiency of the supply chain
- Decreases the error rate on site

Lot traceability
- Manages Halal on a per lot basis
- Increased trust levels through transparency
- Meets export requirements
- Advanced risk management through recall/withdrawal

Toyyiba
- Includes Food Safety Management
- FBO can demonstrate production of safe Halal food

Basic Halal Practice
- Includes Halal management and Halal verification
- FBO can show its commitment to Halal management

Valid certificate
- FBO has to supply only certificate, ingredients and suppliers
- Guarantees valid Halal certificate of FBO and its suppliers
Simplest possible Halal traceability system

- Chain of custody system, equivalent to JAKIM certification requirements

- **WHAT CAN BE ASSURED**
  - At the time of the last audit, all ingredient suppliers had a valid Halal certificate
  - At the time of audit, Golden Meats Sdn Bhd was found compliant

- **WHAT CANNOT BE ASSURED**
  - Which supplier supplied the anchovies for this lot
  - At the time of purchase are the certificates of ingredient suppliers still valid?
  - At the time of purchase, is Golden Meats certified?

Assurance

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Lot-based traceability system with internal traceability

WHAT CAN BE ASSURED
- At time of purchase, the whole supply chain held valid certificates
- Appropriate food safety measures were taken for that lot of Nasi Lemak
- Additional information is available on stunning, hand-slaughter, facing Mekka and other areas

WHAT CANNOT BE ASSURED
- External verification is still required on a risk basis to ensure the validity of the information in the traceability system
Halal Management

Plan and Doc
- Halal Management Commitment
- Halal Traceability Planning
- Halal Verification Planning

Operation
- Chain of Custody
- Halal Traceability
- Recall and Withdrawal

Report
- Halal Traceability Report
- Chain of Custody Report
Toyyiba Management

Plan and Doc

- Preliminary Steps
- HACCP Plan
- Verification Plan
- Food Hygiene Plan (PRP)

Operation

- HACCP
- Food Hygiene

Report

- HACCP Report
- Food Hygiene Report
The role of RFID in Halal assurance

- Supply chain information available through traceability can be used to authenticate a food item
  - Based on separation of data flow from product flow
  - Based on statistics

- The more is checked, the better we know!

- RFID enables companies to move from sample checks to full check
  - 100% no Haram or Musbooh goods on site
  - Zero errors in Halal warehousing and Halal logistics
  - No goods with expired certificate accepted

- But: cost is still too high for RFID on item-level
  - Pallet-level: good
  - Carton-level: for higher-value goods
Practical implementation
Labuan Distribution Hub

- Key motivator: add traceability to Halal claim
- Strategic project
  - Owned by HDC
  - Implemented by Labuan Corporation
  - In collaboration with MARDITECH
  - Integrated with JAKIM (online)
- Project October 2009 – Q1 2011
- Includes RFID integration with Halal traceability

Halal Reg Tracing and Tracking System (HTTS)
Halal Trace and Trace – component view

- Halal Mgt
- Halal and Toyyiba Traceability
- Toyyiba Management
- Common Infrastructure
- HKP
- Halal Knowledge Portal

Radio-frequency Halal logistics

Halal certification management

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Supply Chain Example
Halal Track and Trace – example for shrimp products

- **Requirements**
  - Determine origin of prawn suspected to have been fed with non-Halal feed. Feed delivery order #3211221

- **Halal Track & Trace (HTT) allows tracing and tracking through**
  - receiving at processing plant
  - harvesting from farm
  - receiving & stocking of fries
  - harvesting of PL
  - nauplii fearing
  - spawning
  - receiving & stocking broodstock
1-Step Process:

- Search for DO #3211221
Halal Track and Trace

- Search results show a list of records related to DO #3211221

<table>
<thead>
<tr>
<th>Tracepoint</th>
<th>Date</th>
<th>Site</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant Process</td>
<td>01-09-07 15:33:00</td>
<td>Tiger Prawn Malaysia Test Processor</td>
<td></td>
</tr>
<tr>
<td>Plant Receive</td>
<td>31-08-07 17:45:31</td>
<td>Tiger Prawn Malaysia Test Processor</td>
<td></td>
</tr>
</tbody>
</table>
Halal Track and Trace

Reference: 3211221
Tracepoint:
Starting date:
Ending date:

Execution results

Tracing backwards

Processing Plant

Farm

Broodstock/Hatchery

Farm
Halal Track and Trace

- Tracing forward from plant receive

Reference: 3211221
Tracepoint: Starting date: Ending date:

Execution results

Tracing forward

- Plant Receive (31-08-07 17:45:31)
- Plant Process (01-09-07 15:33:00)
- Plant Despatch (06-09-07 13:29:02)
- CCP monitoring (06-03-08 12:20:42)
- CCP monitoring (01-09-08 10:15:29)
- CCP monitoring (01-09-08 14:14:51)
Results

- Display total supply chain traceability from farm to fork
- All associated material and parties are instantly identified
- Affected product batch can be quickly and easily traced backward through the process
- Improve customer confidence and enable recall/withdrawal
- Look-up e.g. via phone possible
Conclusions
Conclusions

- Halal is a promise – authenticity of the Halal claim is not debatable
- Traceability as enabler of information exchange is the key ingredient to Halal Assurance
  - Separation of the information from the product flow boosts label and certificate certainty
  - Information about practices removes doubts about certification schemes
- There are a number of challenges related to chain food information management
  - Standardisation, ownership and smallholding
- Some solutions are being pursued
  - The Labuan distribution hub implements a Halal Assurance scheme
- We are getting there...
Thank you for your attention!

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