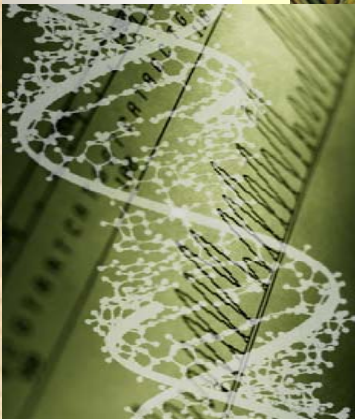




Food Traceability World Standards, Protocols and IT Solutions



4/4/2008

hafize gunsu gemesi 1

■ *National approach to food safety*

USA & Canada	Product is safe unless proven unsafe
UK	Product is unsafe unless proven safe
France	Product is unsafe even if proven safe
Austria	Product is unsafe especially if proven safe
India	Product is safe even if proven unsafe
Ethiopia	Product is unsafe even if not developed yet





Various Standards in Food Traceability

- International Standards: CODEX (food), IOE (animal health), ISO(Product quality and food safety)
- Standards, codes or guidelines initiated by private sector or NGOs, e.g.;
- ***EUROGAP*** (*Global Partnership for Safe and Sustainable Agriculture*) ;
 - ***Protocol on Good Agricultural Practice,1999
 - *Created by retailers belonging to the Euro-Retailer Producer Working Group (EUREP) to implement a series of sector-specific farm certification standards
 - *Applies throughout the supply chain
 - *Independently verify minimum social, environmental and food safety standards
 - *Based on HACCP (Hazard Analysis and Critical Control Point:) principles and addresses traceability and audit requirements in developing countries.



EU General Food Law (Reg 178/2002)

- ***Article 17- Liability issue***

Operators at all stages shall ensure food and feed safety

- ***Article 18-Traceability***

The traceability of food, feed, food-producing animals, and other substance intended to be, or expected to be incorporated into a food or feed shall be established at all stages of production, processing and distribution.

******The traceability provisions of the regulation do not have an extra-territorial effect outside the EU. This requirement covers all the stages of production, processing and distribution in the EU from the importer up to the retail level.***

- ***Article 11-Imports***

Food and feed imported into the community shall comply with the food law or conditions recognized as equivalent.

- ***Article 12-Exports***

Food and feed exported shall comply with the food law, unless otherwise requested by importing authorities.



Traceability Specification in EU

- Identification of Food (lot number)
(Directive 89/396/EEC)
- Fresh Fruits and Vegetables Reg. (EC/2200/1996)
- Beef Traceability (REG.EC/1760/2000)
- Traceability Requirements for Fish (REG.
EC/2065/2001)
- GMO Traceability (REG.EC 1830/2003)
- Traceability of Eggs (REG.EC/2295/2003)



Codex Alimentarius Commission

- International food standards setting body-government to government
- Elaborates standards, food hygiene, labeling, food additives, contaminants, recommendations and guidelines for food additives, pesticide residues etc.
- 170 countries are the members of Codex

Codex Alimentarius Commission

- Parent Organizations:
 - World Health Organization (WHO)
 - Food and Agriculture Organization of the UN (FAO)
- Objectives:
 - *To protect the consumers health
 - *To ensure fair trade practices
 - *To coordinate all food standards





The ISO 22000 series on food safety management

- ISO 22000 Requirements for any organization in the food chain
- ISO 22005 Traceability in the feed and food chain; general principles and guidance for system design and development.



EU Trace Project

- **PDO:** Produced, processed and prepared in a given geographical area using recognized know-how
- **PGI:** The geographical link must occur at the production, processing or preparation stage
- **TSG:** Highlights traditional character, either in ingredients or means of production



Trace: *delivering integrated traceability systems to gain consumer trust in the authenticity of food*

- The 5 year project sponsored by European Commission
- It will provide “Good Traceability Practice” guide for food industry from farm to market.
- TRACE will develop cost effective analytical methods integrated within sector-specific and generic traceability systems that will enable the determination and objective verification of the origin of food.
- It is main focus will be on mineral water, cereals, honey, meat and chicken but will cover many other commodities.



www.Trace.eu.org

What is regulated ?

- ProductUSA
- Technology.....EU
- Novelty.....CANADA



*LABELING

*TRACEABILITY

*LIABILITY





Regulatory Initiatives

- EU General Food Traceability Regulation (EC/178/2002)
 - *Food and Feed
 - *Identify immediate suppliers & customers
 - *Member states must implement
- EU GMO Traceability & Labelling Regulation
- EU Beef Labelling Regulation (EC 1760/2000)
 - *Compulsory beef labelling and traceability system including cattle ID, beef product labelling (traceability number)

*The **GSI** Traceability Standard is a business process standard describing the traceability process independently from the choice of enabling technologies*



■ One Global Traceability Standard

***in order to have the choice of the tools

***simple and relevant traceability tools
for all companies



What is GS1

- 60 participants from Australia, Belgium, Canada, Chili, Turkey, Colombia, France, Germany, Japan, United States, The Netherlands, New Zealand, Portugal, South Africa, Switzerland, UK
- Function of GS1; deliverables and timelines
 - *Compare existing reference documents
 - *List traceability business requirements
 - *Describe the traceability process, types of related data, vocabulary (Q1)
 - *Gap analysis between existing and required Data Management standards (Q2)
 - *Deliver the Global Traceability Standards (Q3)

• ***EAN.UCC*** standards is a prerequisite for the alignment of traceability systems



■ Recent **EAN.UCC** standardization development in the field of RFID are internationally known as the Electronic Product Code (EPC) Network



EAN.UCC (GS1) Standards

- GTIN

Global Trade Item Number

- SSCC

Serial Shipping Container
Code

- GLN

Global Location Number

One Item

One Pallet

One Place of Origin



Use of UCC/EAN-128 bar code on beef at slaughterhouse



(01)98712345670019(3102)003725(251)NL21243857

(01)98712345670019 = GTIN

(3102)003725 = Net Weight

1243857 = Reference Number

*The AI(01) indicates that the following Data Element
(**98712345670019**) is the GTIN

*The Slaughterhouse uses a specific GTIN for that specific piece of meat:

98712345670019

*At the beginning of the Data Element there is a 9, which indicates that a product has variable quantity (in this case weight)

*AI(**3102**) indicates the net Weight of the product, in this example, 37.25 kilograms.

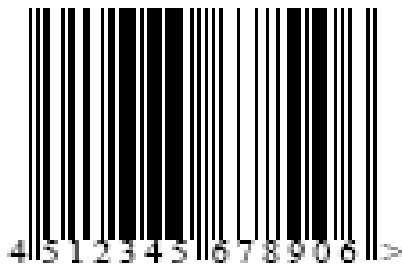
*AI(**251**) indicates the reference Number of the original animal, in this example **NL21243857**

■ ***EAN International*** has identified key principles and produced an implementation grid, which links them to enabling technologies and relevant [EAN.UCC System tools](#)

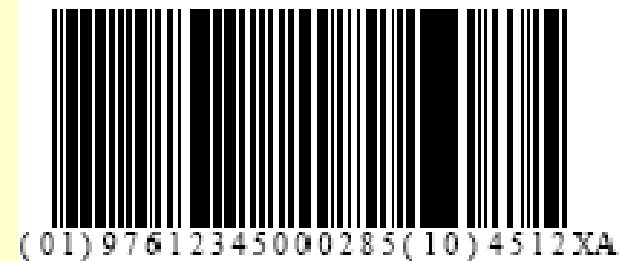
Traceability Principles	Enabling Technologies	EAN.UCC System Tools
Unique Identification	Automated Identification	GTIN, SSCC, GLN, Application Identifiers
Data Capture and Recording	Automated Data Capture	EAN/UPC, UCC/EAN-128
Links Management	Electronic Data Processing	Software Applications
Data Communication	Electronic Data Interchange	EANCOM/XML

■ Data Capture and Recording

***Products, Standard Trade Item Grouping,
pallets identified with applicable EAN.UCC standards
(GTIN, SSCC, Application Identifier (AI))
must be bar coded in relevant EAN.UCC
bar code symbols



Example of an EAN/UPC Bar Code



Example of an UCC/EAN-128 Bar Code



RFID (Radio Frequency Identification)

- RFID is a growing technology that utilizes radio frequencies to identify products (trade items), pallets (logistic units) and/or returnable assets throughout the supply chain.
- Advantages; reliability, robustness, readability, and some version condition monitoring such as temperature sensing ability.



Global Data Structure

- EAN.UCC has developed identification keys that are the Global Location Number (GLN) and the Global Trade Item Number (GTIN)
- These components have to be used properly by following EAN.UCC principles such as:
 - *GTIN allocation rules (When to change a GTIN?)
 - *GLN allocation rules (How to assign a GLN?)
 - *Bar Code or Radio Frequency (RFID) Specifications (How is the key physically carried?)
 - *Other rules (Symbol placement, Physical package attribute, etc.)

Global Standards Management Process

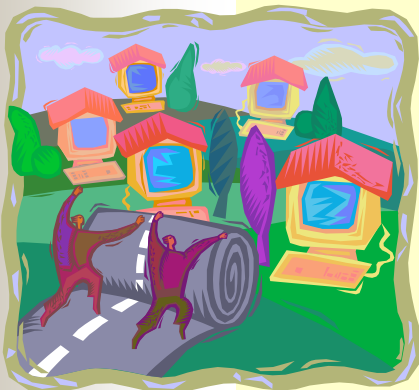
GTIN



GLN


GDD

GPC



4/4/2008

- Ensure that your company and your supply chain partners have adopted the EAN.UCC GTIN, GLN, Global Data Dictionary (GDD) and Global Product Classification⁹(GPC) standards
- This is the key prerequisite to start GDS (Global Data Synchronization).
- Ensure that your internal or third party data pool is EAN.UCC certified and interoperable in the GDSN

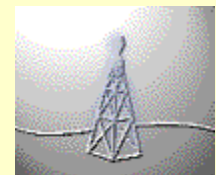


The evolution in traceability is strongly influenced by the continues upgrading on IT sector. Falling cost of hardware and software to track product attributes, processes and location/ownership on appropriately sized individuals unit of production (Lot) opens the door to management at a lower granularity level-the appropriately sized individual unit of production.

The Development of traceability systems

throughout the food supply chain system reflects a dynamic balancing of benefits and costs. It also enhance the effectiveness of liability law as an incentive for firms to produce safe(high quality) food.

More research is needed to determine the most effective form of traceability, which take due account of cross cultural differences in information preferences where they exist.





Questions???