政院行及所屬各機關出國報告

（出國類別：參加國際會議）

參加2004年「第四屆亞洲農業資訊科技會議」報告

服務機關：行政院農業委員會

出 國 人 職　　稱：技正兼科長

姓　　名：林　貞

職　　稱：技正

姓　　名：葉執東

出國地區：泰國 曼谷

出國期間：九十三年八月八至十三日

報告日期：九十三年十月二十五日

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第四屆亞洲農業資訊科技會議

主辦機關:

行政院農業委員會

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出國類別: 其他

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分類號/目: F0／綜合（農業類）　F0／綜合（農業類）

關鍵詞: AFITA;Food Safety;Food Traceability

內容摘要: 在應用資訊技術推動知識經濟發展趨勢下，全球農業進入資訊化作業的時代亦是必然趨勢，爲此，亞洲資訊科技領導國家共同成立亞洲農業資訊科技聯盟（Asian Federation for Information Technology in Agriculture,AFITA）。本次會議爲第四屆亞洲農業資訊科技研討會暨第二屆世界農業電腦應用會(AFITA/WCCA 2004)，於二○○四年八月九日在泰國曼谷舉行，總共有來自三十餘國家近二百八十名代表參加本次會議。 本次會議主要討論主題包含下列十一大項：一、農業政策與發展;二、農業資源整合聯繫與擴展;三、農業專家系統與決策支援系統;四、農業電子化與產業供應鏈管理;五、農業環境資訊與資料庫系統;六、農業格網與網路整合服務;七、田間資料蒐集與記錄;八、地理資訊系統與精準農業;九、農業資訊教育訓練與遠距教學;十、水產資源管理;十一、無線網路及感測等方面應用與研究。本報告期能提供我國發展農產品履歷追溯制度時的參考，並冀盼此文能夠拋磚引玉，引起大家對此議題的重視。推動農產品履歷的成敗關鍵，在於農民與流通業者能否體認生產安全衛生、高品質產品的重要職責，以及對自己生產的產品負責、主動向消費者提供透明生產資訊的責任與義務；當然消費者的團結與督促，同樣將是促使該制度成功的重要推手。

本文電子檔已上傳至出國報告資訊網

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壹、前言

在應用資訊技術推動知識經濟發展趨勢下，全球農業進入資訊化作業的時代亦是必然趨勢，為此，亞洲資訊科技領導國家共同成立亞洲農業資訊科技聯盟（Asian Federation for Information Technology in Agriculture, AFITA）。其中，首屆亞洲農業資訊科技會議於日本和歌山市舉行，共有來自世界各地十三個國家參與。本次會議為第四屆亞洲農業資訊科技研討會暨第二屆世界農業電腦應用會(AFITA/WCCA 2004)，於二〇〇四年八月九日在泰國曼谷舉行，總共有來自三十餘國家近二百八十名代表參加。

AFITA 的成立目的是由於亞洲國家面臨類似的農業問題，因此有彼此訊息交換與資訊分享的需求，以共同觀摩亞洲國家農業資訊基礎建設發展，藉由農業專家共聚一堂，經過研討、達成共識後，提供相關農業資訊發展的政策建議，並以資訊技術的分享機制促進各國農村快速發展與縮減數位落差。

貳、目的

由於農業資訊技術的應用未來將成為農業永續發展的重要工具，近幾年來亞洲農業資訊技術進入了高速發展的新時期，亞洲各國資訊技術應用於農業均有長足進步，並累積豐富經驗，因

此本次第四屆亞洲農業資訊科技研討會暨第二屆世界農業電腦應用會議共同舉辦農業資訊技術論壇，以提供亞洲各國相互學習與觀摩機會。

本次會議主要討論主題包含下列十一大項：

一、農業政策與發展

二、農業資源整合聯繫與擴展

三、農業專家系統與決策支援系統

四、農業電子化與產業供應鏈管理

五、農業環境資訊與資料庫系統

六、農業格網與網路整合服務

七、田間資料蒐集與記錄

八、地理資訊系統與精準農業

九、農業資訊教育訓練與遠距教學

十、水產資源管理

十一、無線網路及感測等方面應用與研究

參加此次會議之國家代表除主辦國(泰國)外，並有台灣、美國、日本、韓國、菲律賓、印度、印尼、馬來西亞、越南、泰國、紐西蘭、德國、瑞典等 30 餘國，共有一百零六篇論文及報告在會議中提出。

參、會議議程

本會議共四天議程，分四會議室同時進行，會議議程如附錄一。

肆、會議主要內容彙整

一、農產品安全與追溯（Food Safety and Traceability）議題日益受重視

由本屆會議報告中顯示歐美與日韓等國日益重視農產品之安全與追溯（Food safety and Traceability）體系之建立，各國除積極致力於相關資訊基礎建設外，更以立法手段來促進農產品之安全與追溯體系之施行。

日本於2002年eJapan計畫中以五年五千億日幣之時程與經費來建構日本的農產品安全可追溯體系，其中導入多項國際標準（ISO）與制定相關法規（JAS）落實。韓國目前亦規劃由該國GAP農民（Good Agricultural Practice farmers）開始導入蔬果產業的安全體系與追溯系統，並於2004-2005兩年期間加強農民相關訓練，預計於2006年蔬果全面實施相關措施。泰國也於會議中針對食品安全策略規劃等內容，提出IT技術的應用與ISO國際標準等多項議題，並針對東協食品安全網絡組織（ASEAN Food Safety Network）深入介紹，說明東協日益重視農產品出口的安全規範（MRA協議）。

二、農業部門數位落差之縮減

近年來由於資訊通信科技的普及與電子商務的興起，「數位落差」逐漸成為國際間關注的焦點，國際間各個組織亦紛紛成立數位落差的研究或執行機構，我國亦體認數位落差對於亞太區域發展所造成之影響，為促進消弭數位落差合作與努力，於亞太經合會部長年會中提出「轉化數位落差為數位機會」之議案。此外，亞太經合會更為因應世界新經濟所帶來之挑戰，以強化會員國之國內民眾於二〇一〇年均能使用網際網路服務為目標，針對各會員國如何消弭數位落差及增加網際網路之接取率訂出十大努力方向，顯示國際間對於數位落差所帶來之影響業已正面重視與積極因應中。

本次會議中 FAO 亦提出多項建議做法如下：

（一）參照泰國、印尼及斯里蘭卡做法，以政府政策強力介入主導的方式來解決數位落差的問題；

（二）善用資訊網路，有效發揮資訊通訊科技的效益；

（三）妥善規劃公、私部門的合作關係與量能；

（四）建立區域的知識分享機制。

三、各國農業政策與發展現況與未來

本次會議中有中國大陸、菲律賓、印度、蒙古、馬來西亞及

泰國等國，分別發表有關精準農業、資訊科技應用與發展、知識管理、農村寬頻無線網路建置以及電子化政府的政策現況等報告，提供與會代表參考。

隨著我國加入 WTO 後，農業應積極思考轉型以強化競爭能力，使台灣農業能應用既有知識激發創新，使台灣農業得以永續發展。

四、農業資訊系統與環境資源資料庫應用

透過資訊系統的輔助可整合多種資料庫來源，作為最佳的土地資源規畫管理與田間生產管理的決策依據，例如電子期刊與數位圖書館、田間資料蒐集與應用、病蟲害防治、植病線上診斷等，本次會議與會代表提出有關探討資訊系統與環境資源資料庫應用多篇報告。

伍、心得與建議

資訊科技與網路之應用對全球各產業的經營不可諱言地已產生革命性的變化與影響，有關產業資訊應用如電子商務、網路付款、網路安全與訊息交換等議題都曾於全球被激烈討論過。當然，農業這個傳統產業的資訊應用也不能被排除於外，特別是生活在二十一世紀中，我們應更積極導入資訊科技應用於農業領域，始能符合講求快速、方便與重視健康的需求。

現今的台灣身處於國際競爭的環境中，我們國家應建立一個以資訊網路促進農業永續發展與傳播知識的環境，以期利用網際網路低成本、高便利性的特性造就本土農產品安全管理與休閒農業對外傳播的效果，可建立台灣農產品健康形象，更可強化在外貿市場上競爭能力，因此健全台灣農產品安全管理資訊體系以擴展外銷市場是務實而可行做法。

「建立安全農業管理資訊應用」可謂為本屆會議研討重心，由本次會議得知，歐美與日、韓、泰等國莫不致力於農業品安全體系的建立與導入相關資訊應用，例如附錄二之「一、日本的食品安全與追溯體系現況」資料中，龜岡孝治(Kameoka Takaharu)先生完整呈現日本國內針對食品安全體系的實際做法，其中涵蓋食品安全政策(Food Safety Policy)、產品追溯系統(Traceability System)、田間追溯機制(Traceability in the Farm)，以及國際標準制定(ISO 22000 & ISO 22519)。

我國在重視農產品安全追溯體系的時代趨勢下，也開始建立農產品追溯系統示範體系（行政院農業委員會企劃處93年度農業發展「農業產業價值鏈管理資訊體系之建立」及「有機稻米田間監測體系之研究與應用」兩項計畫)。

經由本次會議於建立食品安全與追溯體系與無線網路等資

訊通訊科技應用的相關議題研討後，本報告提出建立農產品產銷履歷的建議作法，可利用電腦或手機透過網路來追蹤農產品生產過程，作為生產者、流通者、消費者之間相互聯繫的媒介，並為了協助農民在網路上建置農產品田間生產履歷，以及方便消費者利用產品上的產銷履歷號碼進行查詢，政府應開發一套全國性的農產品專屬資訊系統，提供廣大農民與消費者使用。

在推動農民建立產品履歷系統的初期，雖著重在建立生產履歷的部分，而銷售流通過程的履歷，後續也應持續發展。

在執行方法上，則可比照韓國從 GAP 農民開始導入的做法，優先鼓勵「吉園圃」產銷班與「有機」農場有意願嘗試記錄生產履歷的農民以及開始推動。並建議未來農產品產銷履歷資訊系統應分別針對農民與消費者有不同的應用服務。

一、消費者利用網際網路查詢生產履歷資料

消費者在市場上購得具有生產履歷的農產品後，可利用電腦直接在網際網路上看到生產者的相片與連絡方式、產銷班資訊、生產地點，以及完整的生產過程記錄。如果消費者對相關內容有興趣，還可以進一步按下其他連結，查詢栽培技術，或是飲食、健康等相關知識。

二、生產者記錄生產履歷的方式

提供農民記錄生產履歷的工具應考慮操作的便利性，因此最好能包括：1.紙本記錄；2.利用個人電腦記錄後上傳 3.直接於網際網路系統上記錄；4.利用產銷班或農會內部的資訊系統紀錄再上傳生產履歷；5.利用 PDA 進行記錄，再將內容上傳至網際網路上的系統。讓農民可以依據自己的需要與可行性，選擇最便利的記錄方法。

對一般農民而言，記錄生產栽培的過程，可能是一項新的嘗試與挑戰，政府本於推動優質、安全農業之立場，規劃易於使用生產履歷紀錄系統，以及供消費者查詢的平台，並簡化農民記錄生產履歷的步驟，降低農民應用資訊科技的門檻。

陸、結論

資訊科技之應用可創造農業另一波之新風貌，這其中則有賴民間投資與技術研發、創新，並配合農民組織流程的重組與再造，以發揮資訊科技為農業所帶來的效益。政府部門同時應提供有效誘因，鼓勵民間部門能依據市場需求，掌握商機及相關產業資訊，投入相關軟硬體基礎設施之製造及生產，並開發及創造加值（value-added）型服務，迎接知識經濟時代的來臨。在進入二十一世紀的今天，政府部門應深入瞭解數位經濟的特徵與其可

能產生的相關問題（如數位落差），且預加防範，予以妥善管理與執行，且協助農民與農民組織提升資訊科技使用能力與發揮創意。

藉由研析亞洲國家農業資訊發展之精神與經驗，有助於未來規劃相關工作之進行，期能使我國農業維持國際競爭優勢。

日本推動的食品履歷追溯制度，能有效敦促農民重視生產過程的合理性，負責並追求農產品的品質與安全，以及提高農民的競爭力；同時，發展農業資訊服務產業能帶給農民的實質獲利，預期並將進一步堆砌出農產品消費的新秩序，在生產者、加工者、運銷者與消費者之間，建築出互信、互惠，甚至互利的新社會。日本政府全面推動此一制度的勇氣，以及所有從業者積極配合迎接此挑戰的努力，的確值得國人借鏡與學習。

我國自 83 年起推動的「吉園圃」標章驗證制度與日本食品履歷追溯制度有許多相似之處，惟因推動吉園圃標章制度未能有效利用資訊工具促使農民之生產管理流程及相關資訊透明化，致使消費者對於標章不信任或不知其意義，而農民則認為雖擁有該標章並未能享有較高之售價，因此推動吉園圃標章驗證制度十年來未能建立該標章之公信度。且貼有吉園圃標章之農產品難以追溯其生產過程，因此，為落實該制度之推動需導入農產品生產履

歷管理資訊系統，並促成吉園圃管理作業資訊化。另一方面，目前吉園圃僅僅只記錄病蟲草害防治資訊，未來可強化包括物種品系、農民背景，以及其他生產栽培作業資訊等，甚至提供加值知識服務，以及建置消費者可容易追溯農產品來源及生產過程之查詢系統。

面對消費者知的需求與權益的覺醒，以及國人對食品衛生與安全健康的殷切盼望，相信資訊透明、精緻、安全衛生的食品，其接受度與市場將日益擴大。面對此一來自社會內部，消費者內心不斷成長的渴望與需求，建立農產品產銷履歷追溯制度是福國利民的必要措施。

推動農產品履歷的成敗關鍵，在於農民與流通業者能否體認生產安全衛生、高品質農產品的重要職責，以及對自己生產的產品負責、主動向消費者提供透明生產資訊的責任與義務；當然消費者的團結與督促，同樣將是促使該制度成功的重要推手。

柒、附錄

附錄一、AFITA/WCCA2004 議程

Program Schedule for AFITA/WCCA 2004 August 9-12, 2004 (Tentative)

*Please check periodically for the updated program schedule

Venue Layout : 1st Floor

August 9, 2004 (Mon)				
Room	Ballroom			
9.00 - 10.30	Symposium on IT for Food Safety: Traceability and MRA (Mutual Recognition Agreement)			
10.30 - 11.00	Break			
Room	Montathip 3	Montathip 1	Montathip 4	RatanaKosin
11.00 - 12.30	Workshop:Bridging the Rural Digital Divide session 1 Opening and Rural development with ICTs	Poster Presentation	Workshop:Wireless/Handheld Spatial Data Logger Demonstration	Workshop: The Multilinguality in Agricultural Information Access
12.30 - 13.30	Lunch (Pimanman)			
13.30 - 15.00	Workshop: Bridging the Rural Digital Divide session 2 Community Information Systems	Poster Presentation	Publishing Your GIS Data on the Web- Using Free Open Source Software	Workshop: The Multilinguality in Agricultural Information Access
15.00 - 17.00	Grand Opening Ceremony (Ballroom)			
17.00 - 17.30	Break			

August 10, 2004 (Tue)				
Room	Ballroom			
8.30 - 10.30	Keynote Presentations			
10.30 - 11.00	Break			
11.00 - 12.30	Workshop: Bridging the Rural Digital Divide session 3 Government and Industry ICT Programs	Poster Presentation	Workshop: Database for Agriculture Demonstration - Distributed Database in Agricultural Research	Workshop: The Multilinguality in Agricultural Information Access
12.30 - 13.30	Lunch (Ballroom)			
Room	Montathip 3	Montathip 1	Montathip 4	Suriyanchandra
13.30 - 15.00	Rural Development and Policy	Poster Presentation	Education and Distance Learning	Grid and Web Services
15.00 - 15.30	Break			

15.30 - 17.00	Rural Development and Policy	Poster Presentation	Library Science and Knowledge Representation	Grid and Web Services
17.00 - 18.00			Thai Day Summary	
Room		Ballroom		
18.00 - 20.00		Reception Dinner (Cocktails)		

August 11, 2004 (Wed)

Room	Montathip 3	Montathip 1	Montathip 4	Suriyanchandra
9.00 - 10.30	Rural Development and Policy	Poster Presentation	Decision Support System, Farm Management and Modeling	Tutorial: Modeling Agricultural Systems Using Object-oriented Paradigm and the Unified Modeling Language (UML)
10.30 - 11.00		Break		
11.00 - 12.30	Information Resources and Databases	Poster Presentation	Decision Support System, Farm Management and Modeling	Tutorial: Modeling Distributed Agricultural System
12.30 - 13.30		Lunch (Ballroom)		
13.30 - 15.00	AFITA Board Meeting	Poster Discussion Time (Poster authors are required to stay with their own posters)		
15.00 - 15.30		Break		
15.30 - 17.00	Aquatic Resource Management		Decision Support System, Farm Management and Modeling	GIS and Precision Farming
17.00 - 18.00			Thai Day Summary	

August 12, 2004 (Thu)

Room	Montathip 3	Montathip 1	Montathip 4	Suriyanchandra
9.00 - 10.30	Information Resources and Databases	Workshop: International Collaboration towards Sensor Network	E-AgBusiness and Production Chain Management	GIS and Precision Farming/ AIT Sponsored
10.30 - 11.00		Break		

11.00 - 12.30	Information Resources and Databases	Wireless and Sensor Network	E-AgBusiness and Production Chain Management	GIS and Precision Farming/ AIT Sponsored
12.30 - 13.30	Lunch (Ballroom)			
13.30 - 15.00	Information Resources and Databases	Field Data Aquistion and Recording	Adoption and Extension	INFITA Meeting
15.00 - 15.30	Break			
15.30 - 17.00	General Assambly and Closing Ceremony (Ballroom)			
17.00 - 18.00			Thai Day Summary	

附錄二、

一、 日本的食品安全與回溯體系現況

Present Status on Food Safety and Traceability in Japan

Takaharu Kameoka
Executive Vice-President
Mie University, JAPAN

Today's Story

- Food Safety Policy
- Traceability Systems in Japan
  - Introduction of Systems
  - RFID
- Traceability in the Farm
  - FieldServer
  - Optical Sensing
- Conclusion
  - ISO 22000 & ISO 22619

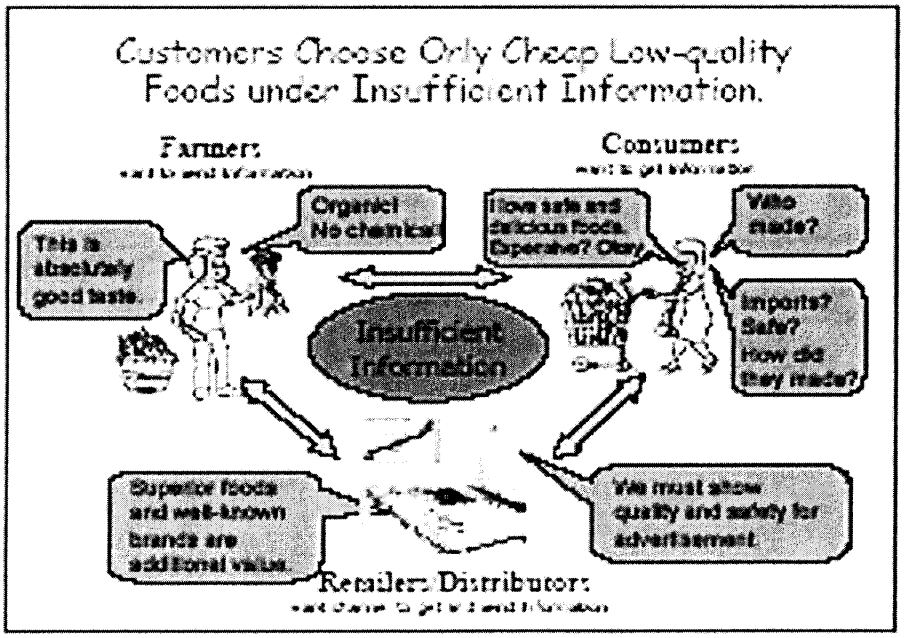
Food Safety Policy

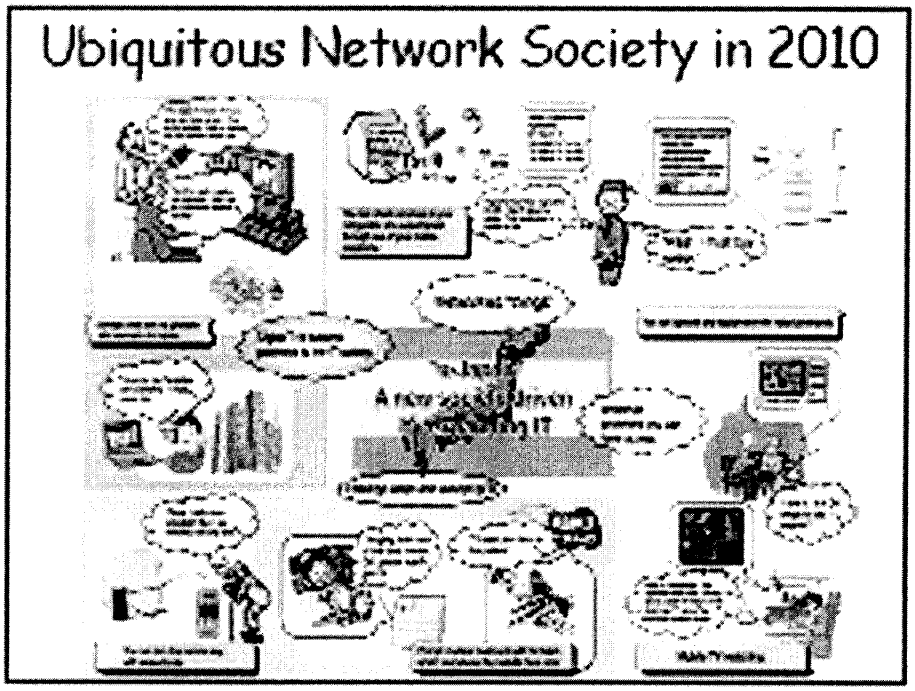
Background of Traceability System Development

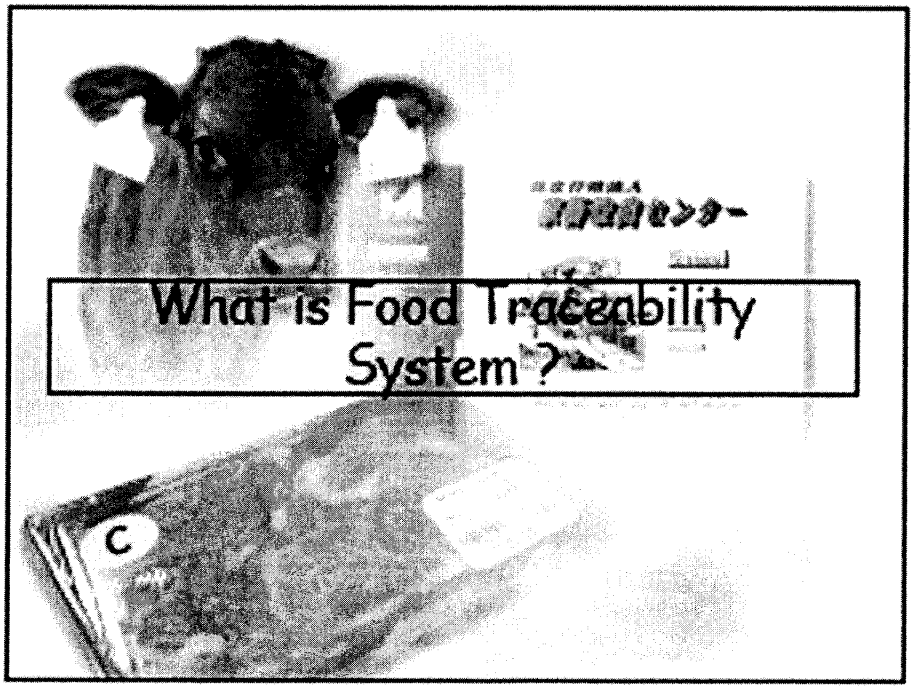
- *Chain of Food Safety Events in Japan*
  - [illegible]
  - [illegible]
  - [illegible]
  - [illegible]
  - [illegible]
  - [illegible]
- *Creating a Food Safety Committee*
  - [illegible]
  - [illegible]
- *Establishing Food Traceability*
  - [illegible]
  - [illegible]
  - [illegible]
  - [illegible]

Development of Food Traceability Systems
Urgent National Projects by the Government (MAFF)

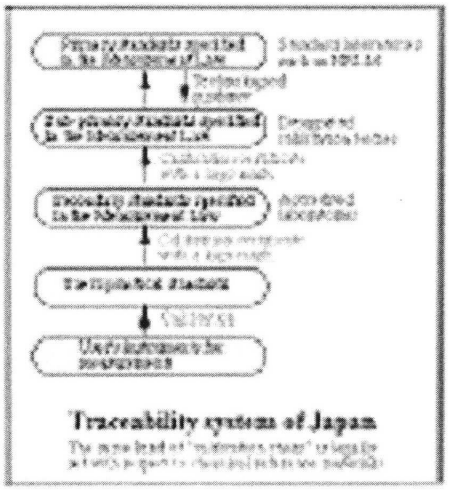
Food, IT, and Traceability Systems in Japan




Ubiquitous Network Society in 2010


What is Food Traceability System ?

What is Traceability in General ?



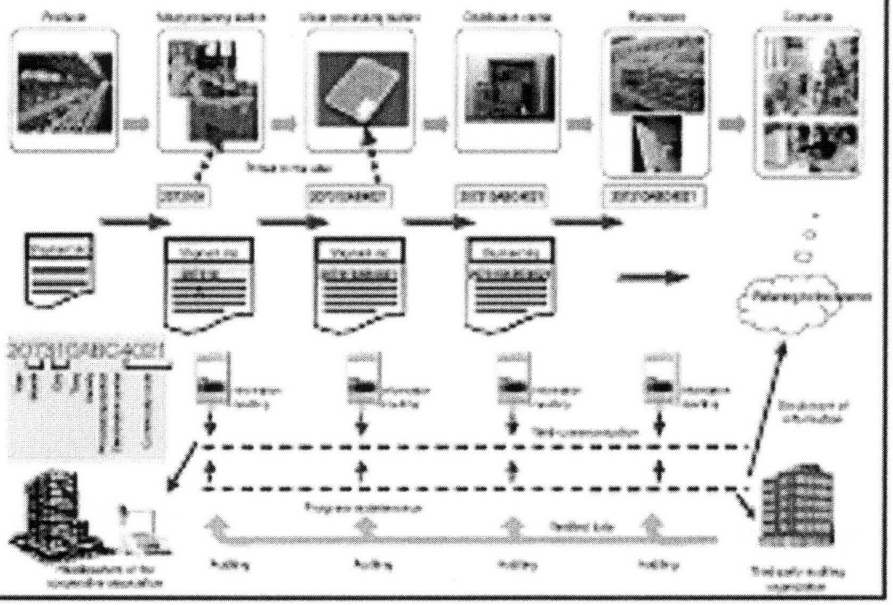
Traceability system of Japan

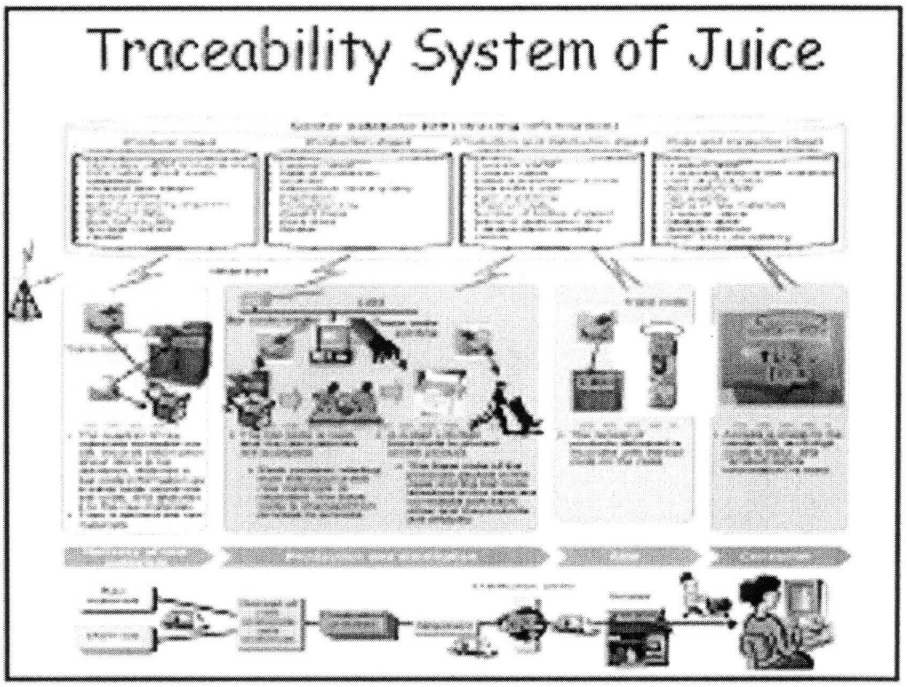
High accuracy in measurement requires calibration of measuring instruments by an accurate standard instrument.

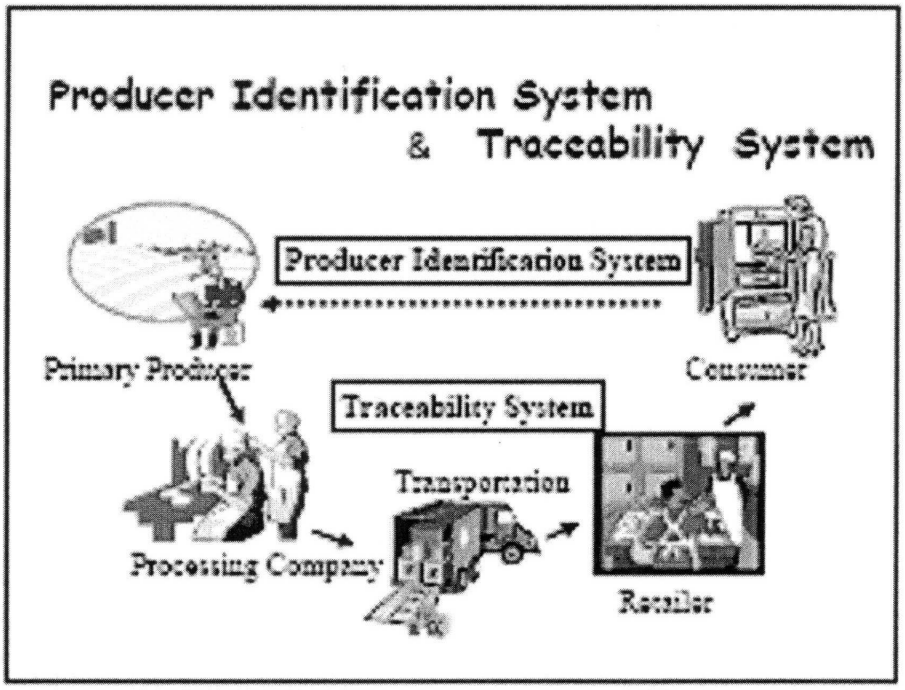
Traceability is defined as indicating that

"the route by which the user's measuring instrument was calibrated is known and the route can be traced to the national standards."

Traceability System of Meat




Traceability System of Juice

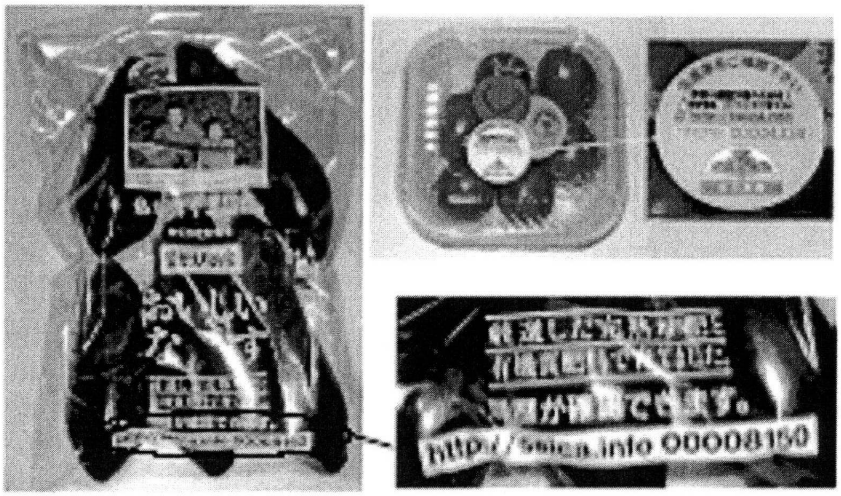

Producer Identification System
& Traceability System
Producer Identification System
Primary Producer
Consumer
Traceability System
Transportation
Processing Company
Retailer

Producer Identification System

(Systems for Traceability Developed by Research Projects)

- "VIPS" (Virtually Identified Produce System)
  Network certification system for agricultural products
- "SEICA"
  Vegetable net-catalogue with VIPS
- "AFAMA"
  Production management system
  by NARC and Jpn. Ag. IT Evolution Assoc.
- "Cyfar's Diary
  On-site data collection system

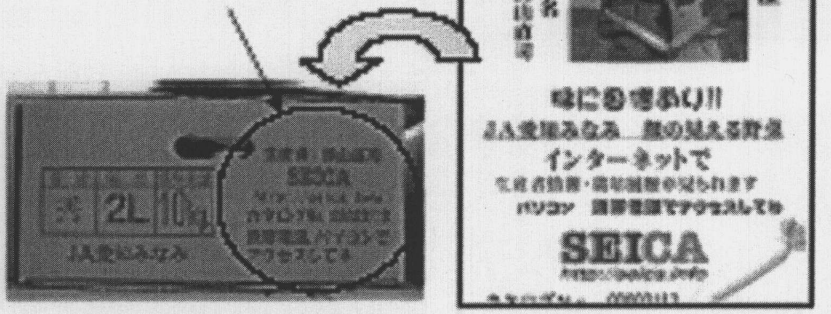
VIPS:URL and Catalogue Serial No.



For Products of Cooperative society

Handout/Poster

Advertisement and
Tag for Traceability

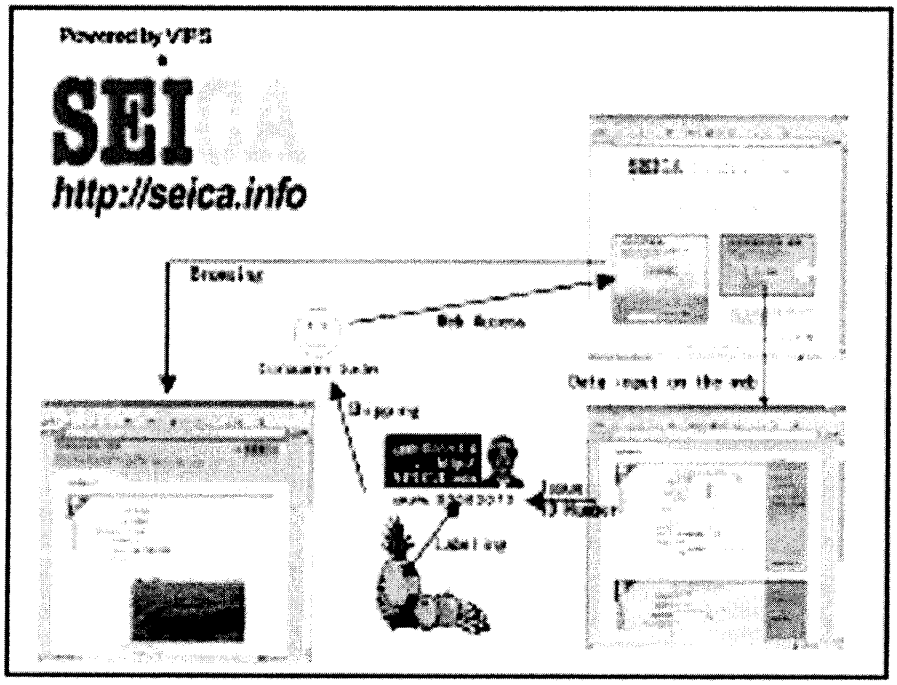


Information Distribution by Push/Pull Media

Network Vegetable Catalogue
? ? ? ? ? ? ? ? ? (SEICA)

SEICA

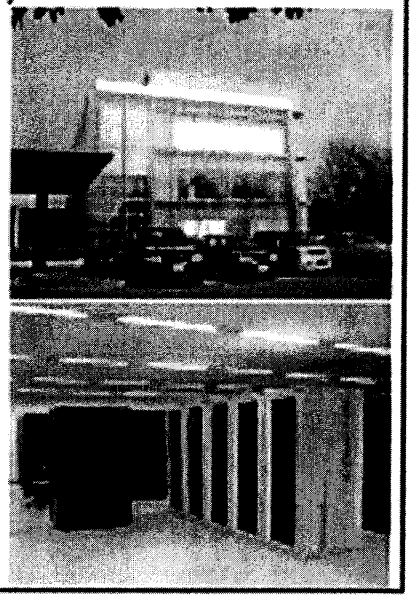
http://seica.info



SEICA System

OS: Windows 2000 Server
Visual Studio .Net + C#
Running on MAPPIN

Started on 2002 August



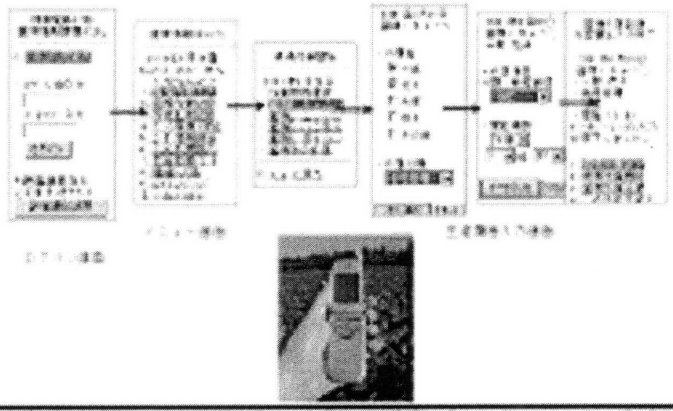
2003 February
Updated

Specification of SEICA

1. Consumers can get detailed information of products on web or mobile phones.
2. Disclosure and detailed management by catalogue No. and URL.
3. Multimedia with images and voice.
4. All vegetables and fruits – about 1700 - are registered including rice and tea.
5. Public/Free database
6. Available for BtoC and BtoB
7. Extendable XML Web service to for private companies.

Production process management system for agriculture, "AFAMA"

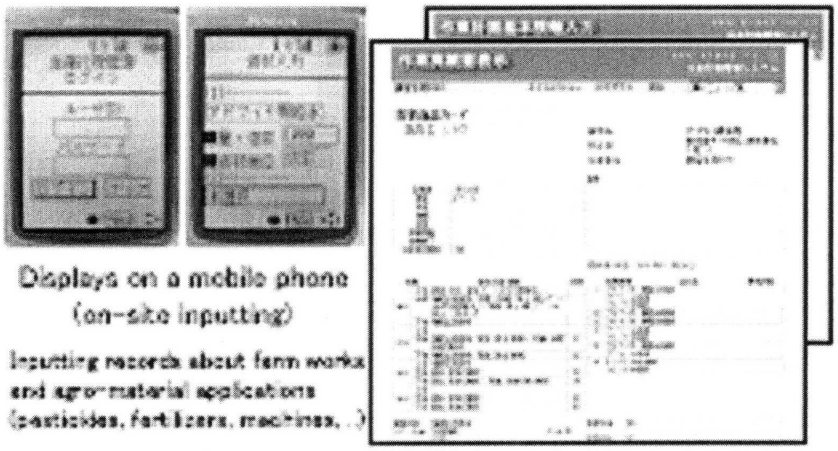
JAFTEA and NARC http://www.afama.ne.jp/



Production history can be inputed to mobile phone just on the field.

Production process management system for agriculture, "AFAMA"

JAITEA and NARC http://www.afama.ne.jp/



Displays on a mobile phone
(on-site inputting)

Inputting records about farm works and agro-material applications (pesticides, fertilizers, machines, ..)

CYFAR(CYber FARmer)

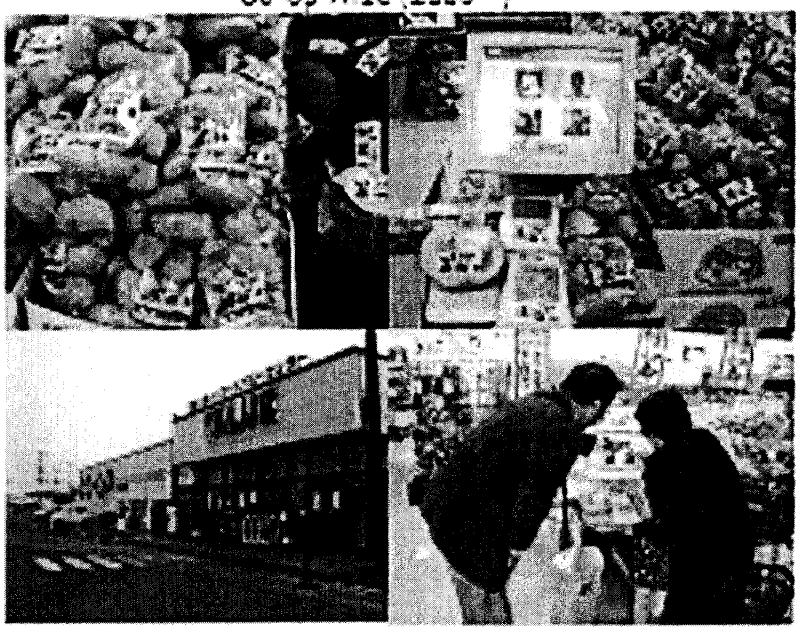
Field Server Workshop 2006 in Thailand

Mobile Web-log Tool "Cyfar's Diary"

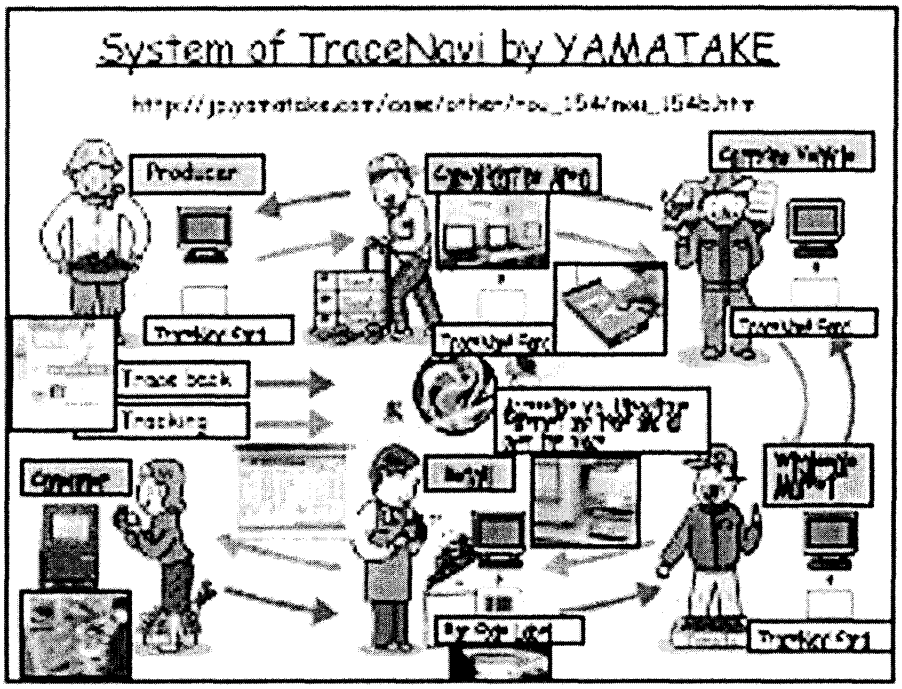
Traceability System with Cyfar's Diary

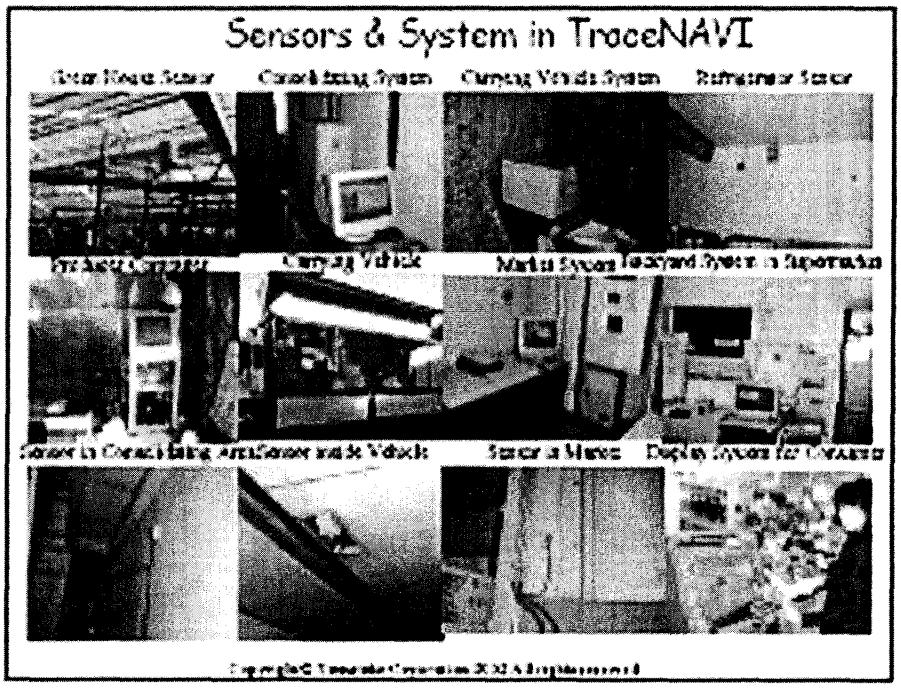
Japan Value Associate Co. Ltd. (2003 -)

Co-op Aizu (2003 -)



Traceability System

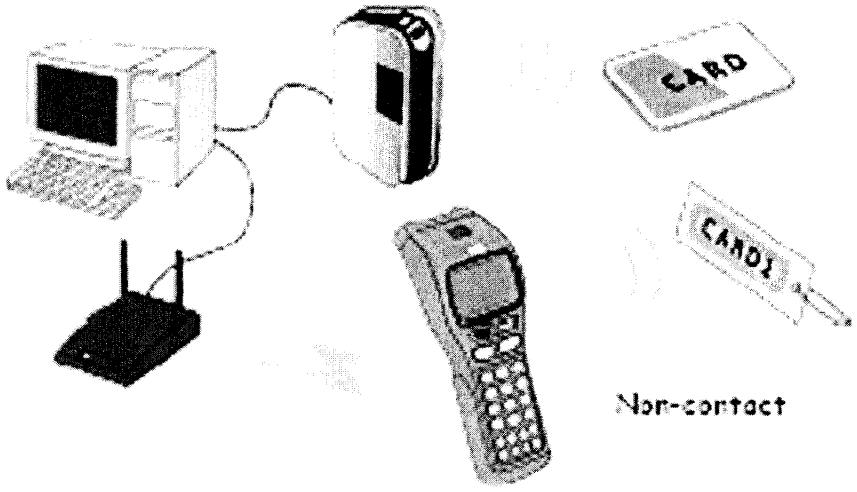

System of TraceNavi by YAMATAKE
Producer
Tracking
Trace back
Tracking
Consumer

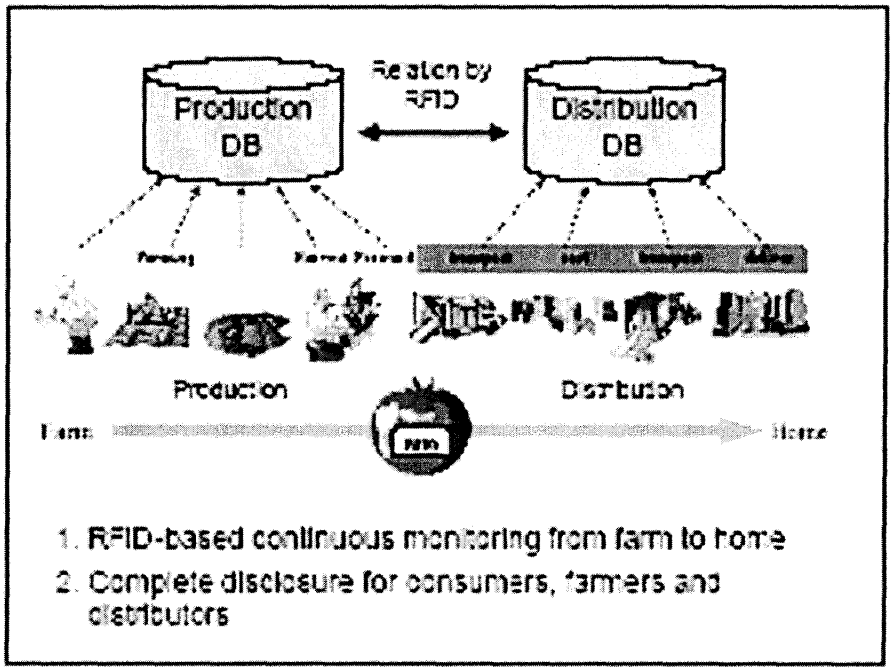

Sensors & System in TraceNAVI

Layers in Traceability

Information Technology (Hardware: RFID, Software: Web Service)
Infrastructure necessary for safety system (Database, Sensors, HACCP, etc.)
Common idea for safety and trust

RFID (Radio Frequency IDentification) for Traceability System

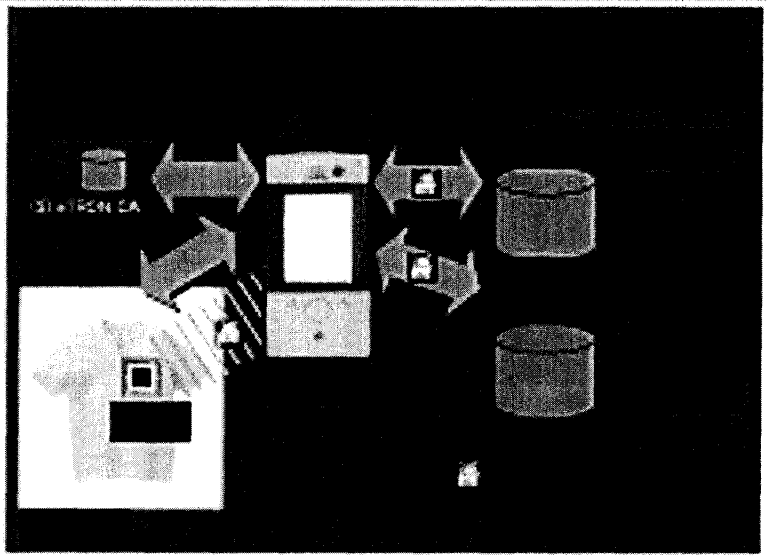




1. RFID-based continuous monitoring from farm to home
2. Complete disclosure for consumers, farmers and distributors

Specifications of Tags

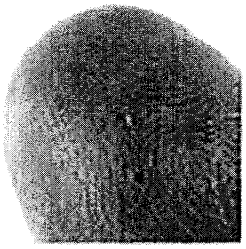
Tag	RF-ID	Bar code	QR code	Coil
Information	enormous	30byte	4KB	1Kbit
Rewrite	ok	no	no	no
Size	large	small	very small	small
Toughness	tough	weak	weak	tough
Concurrent access	ok	no	no	no



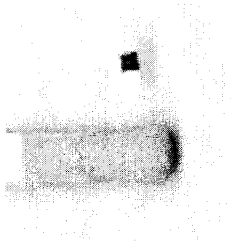
Integrated Food Traceability System Verification Experiment started as part of the "JAPAN Food Traceability Development Activities" of the Ministry of Agriculture, Forestry and Fisheries of Japan.

Standardized ID Tags Certified

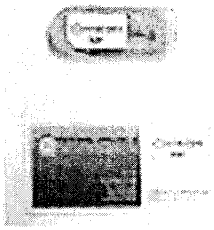
The Ubiquitous ID Center certified three standardized ID tags before its Ubiquitous ID demonstration test begins.
(http://www.uidcenter.org/japanese/press/TEP030523.pdf)



Mu-Chip
developed by Hitachi

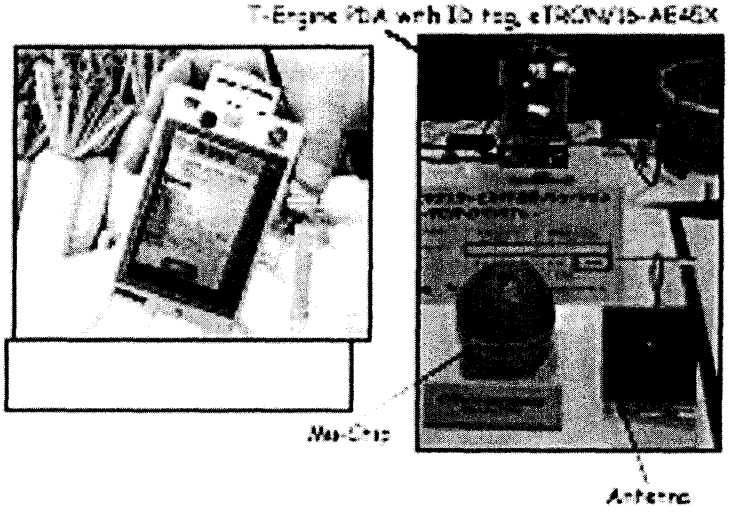


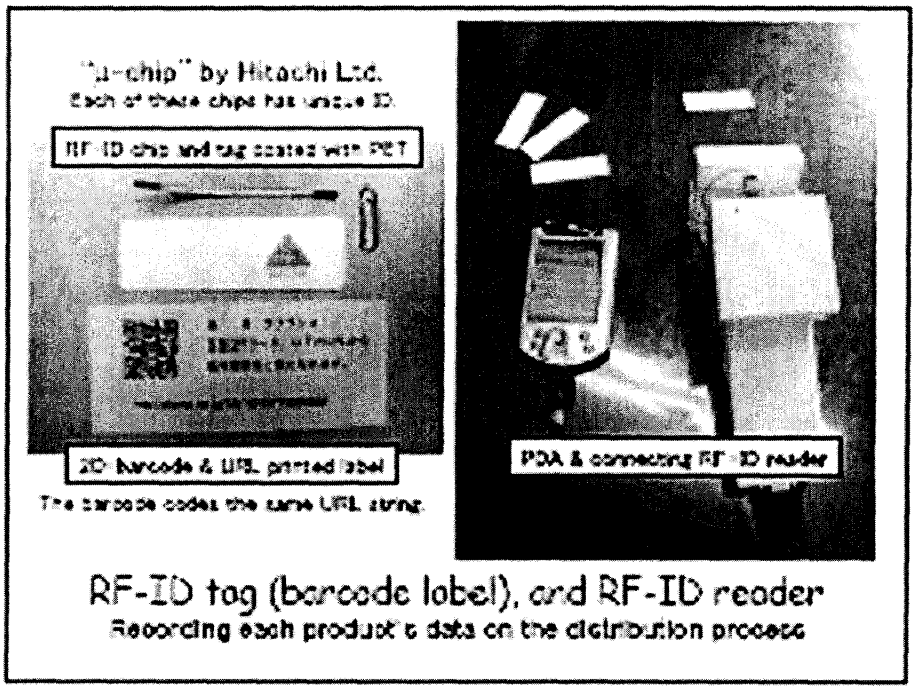
T-Junction
by Toppan Printing Co., Ltd.



eTRON/16-E45X
by YRP Ubiquitous Networking Lab., Sakamura Lab., University of Tokyo, and Renesas Technology Corp., Ltd.

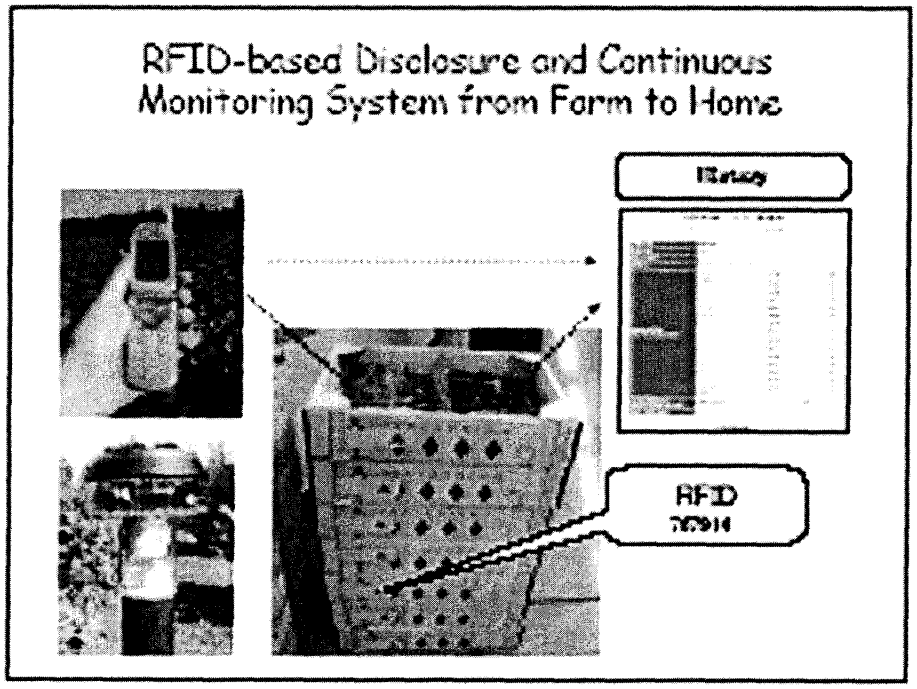
Food Traceability System with RFID





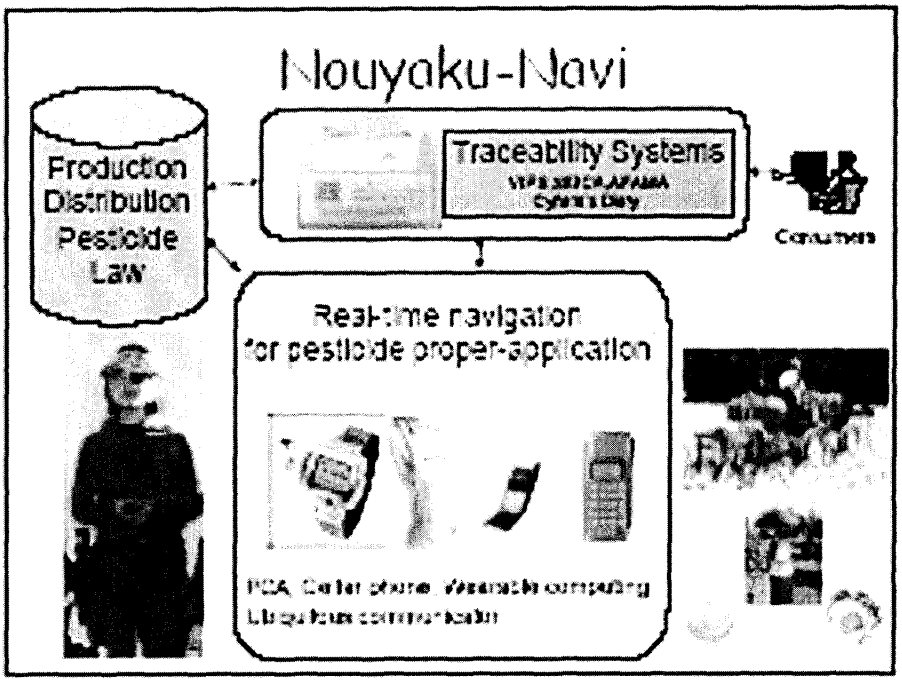
RF-ID tag (barcode label), and RF-ID reader

Recording each product's data on the distribution process



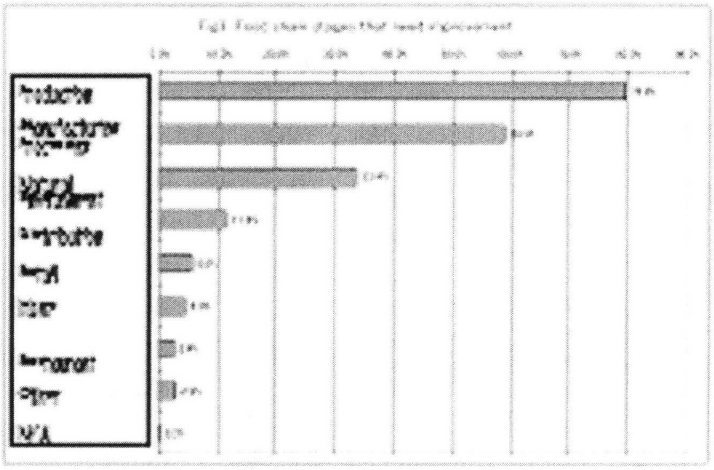
Traceability System Including Agrochemical Information

"Nouyaku(? ?) Navi" Agrochemical Navigation System



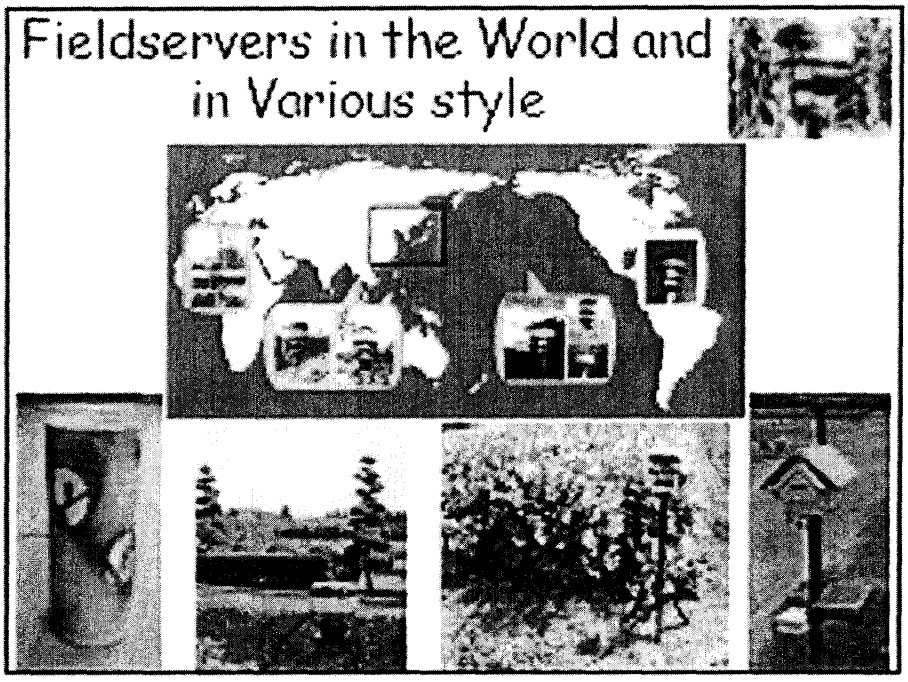
Field monitoring and BIX (BioInformation eXchange)

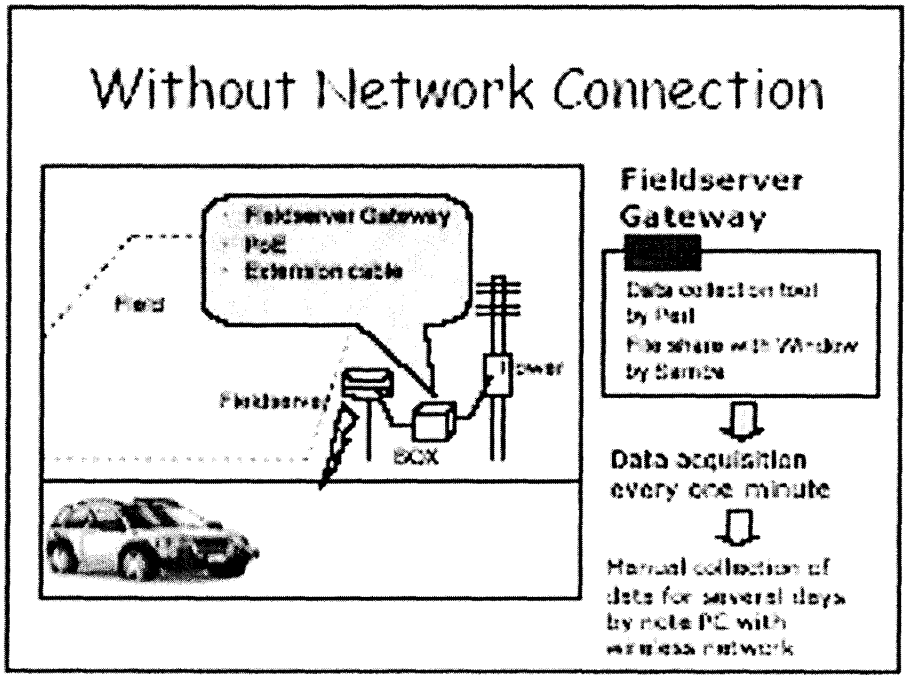
(Question: One or two choices)
Which stage in the food chain do you think is necessary to improve to ensure food safety?



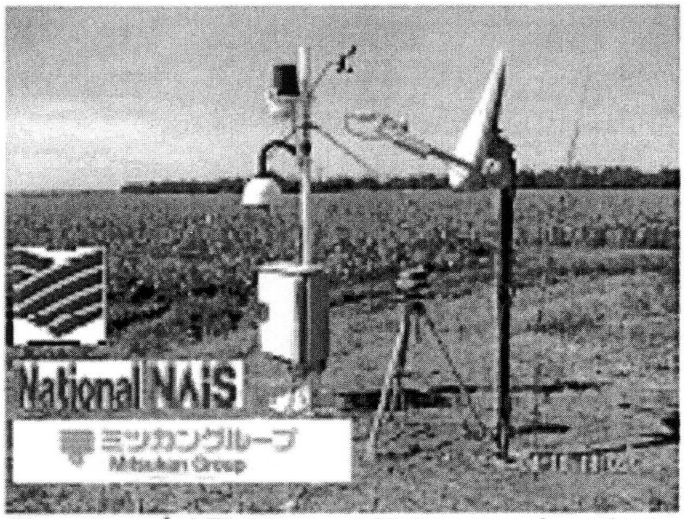
What is FiledServer

- FieldServer is automatic monitoring system, which consists of CPU (Web server), AD converter, DA converter, Ethernet controller, high intensity LED lighting and sensors such as air temperature, relative humidity, solar radiation (PPFD), soil moisture, leaf wetness, infra-red sensor, CMOS\CCD camera.
- FieldServers are interconnected by Wireless LAN (Wi-Fi, IEEE802.11b). Digital cameras and Web cameras can be connected, and high-resolution pictures of fields are transferred through Wi-Fi broadband networks, and stored on Web servers. The cameras can be remotely controlled by web browser.
- Two power photo-MOS relays are installed on FieldServer Engine (main board of the FieldServer), which can switch equipments such as heaters, curtains of greenhouses and DC-supply of FCs. Monitoring data set of the
- FieldServer is displayed on a Web server in the FiledServer. Data sets of FieldServers are automatically stored by agent program on a web server. The data is transformed in to XML database. XML database is accessed by MetBroker, which can provide standardized data for application programs.


Fieldservers in the World and in Various style

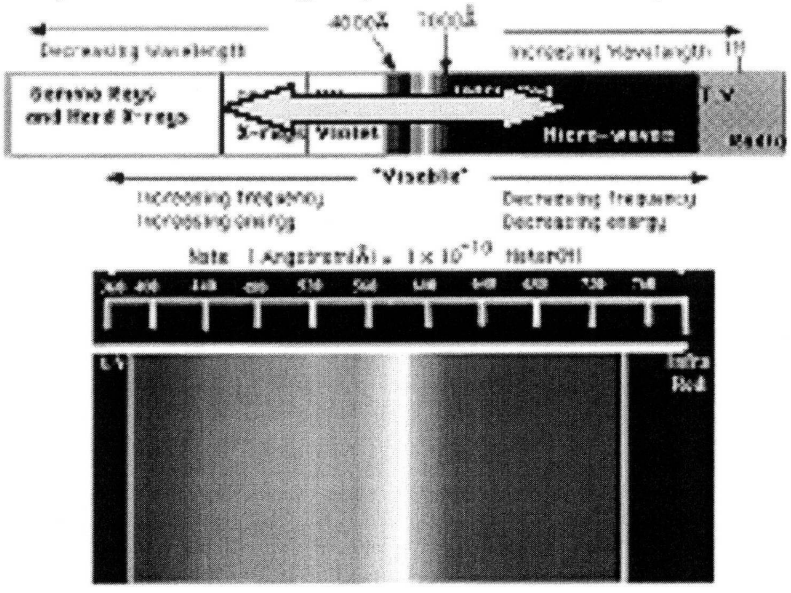

Without Network Connection
Fieldserver Gateway
PoE
Extension cable
Field
Fieldserver
BOX
Fieldserver Gateway
Data acquisition every one minute

Soybean observation system for "Natto" (2003-2004)



Experimental Fieldserver (Arkansas, America)

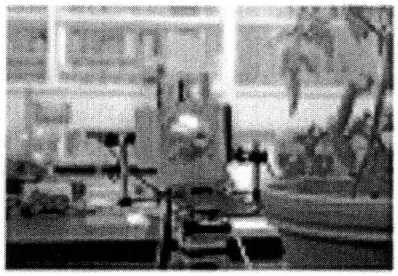
Optical Sensing by Multi-band Spectra

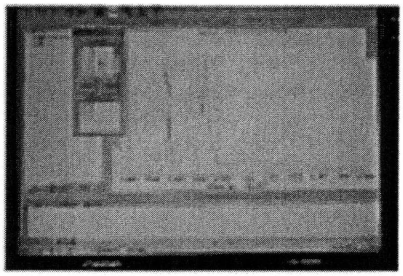


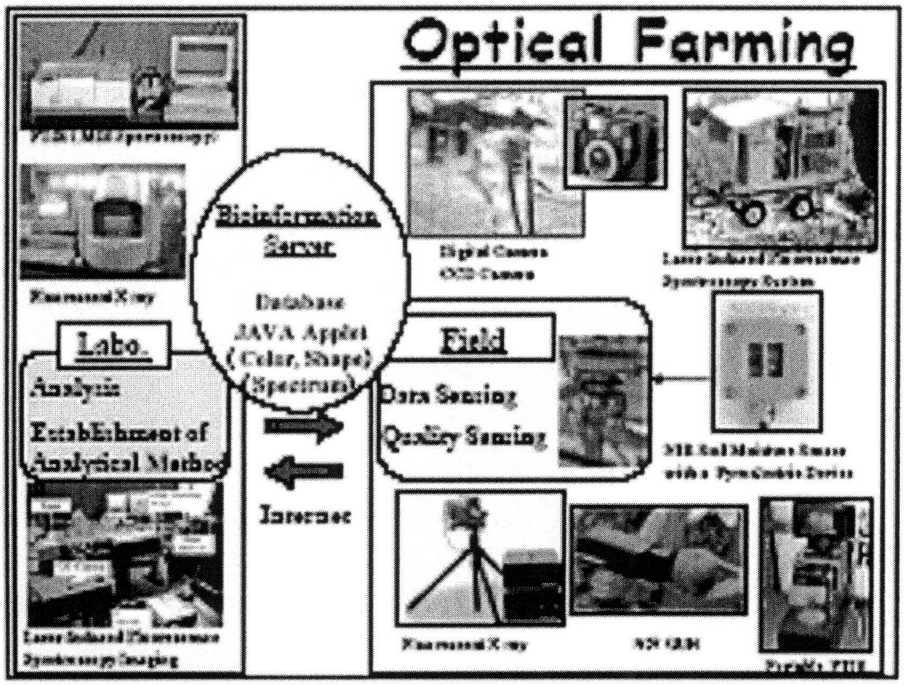
Present Stage of Optical Measurement

1. X ray
   Fluorescent X-ray spectroscopy
   ? Leaf ? K Ca P N Mg Fe Zn Cu S Simultaneous Measurement
2. UV
   Fluorescence spectroscopy ? Leaf (1D, 2D)? Saccharides, Organic acids, Disease Pigments, Symptom
3. VIS
   Color and Shape Analytical Method
   ? Leaf, Fruits? Pigments, Vigor State of Plants
   Color and Shape Analytical Method ? Plant (3D)? Water Potential
4. NIR
   Near Infrared Moisture Sensor with a Pyroelectric Device
   ? Soil ? Moisture Content and Temperature
5. MIR
   FT-IRIATR ? Leaf ? Moisture Content, Oligosaccharides, Nitrogen, Agricultural Chemical
   FT-IRIATR ? Fruits ? Moisture Content, Mono and disaccharides, Acids

Fluorescent X-ray spectroscopy







Conclusions

About ISO 22000 & ISO 22519

ISO 22000 & ISO 22519

- ISO/DIS 22000 (DIS = Draft International Standard)
  - Food safety management systems – Requirements for organizations throughout the food chain
  - Will link HACCP (Hazard Analysis Critical Control Points) to prerequisite areas and SSOPs(Sanitation Standard Operating Procedures)
  - Structure will be aligned with ISO 9001 and ISO 14001
- ISO/CD 22519 (CD = Committee Draft)
  - Traceability system in the food chain – General principles for design and development

Tentative Timetable for Development of the Standard

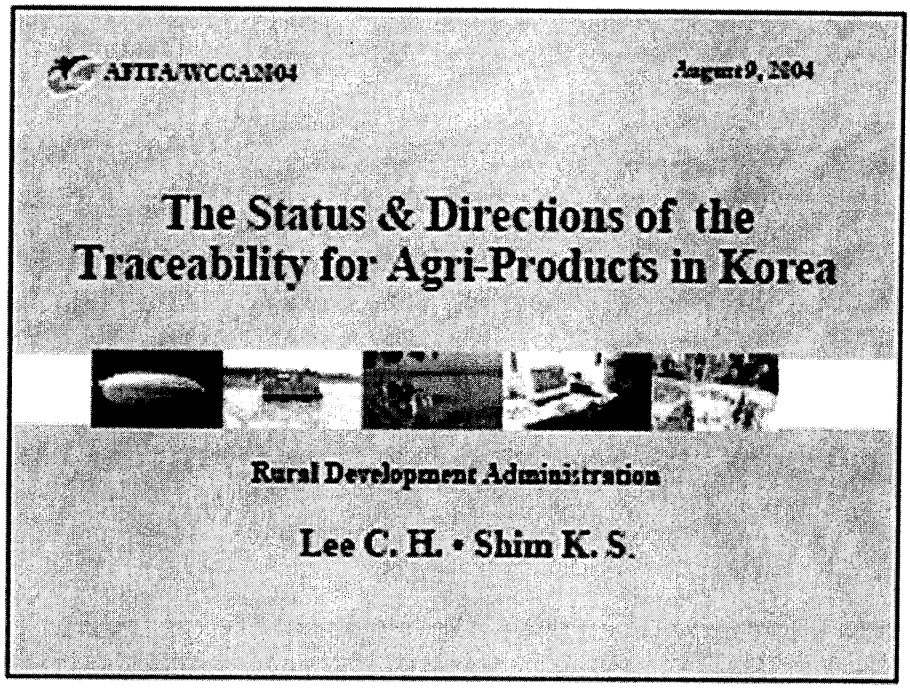
• March	2003	ISO CD 22000
• June	2004	ISO DIS 22000
• Nov	2003	ISO FDIS 22000
• First half of	2005	ISO 22000

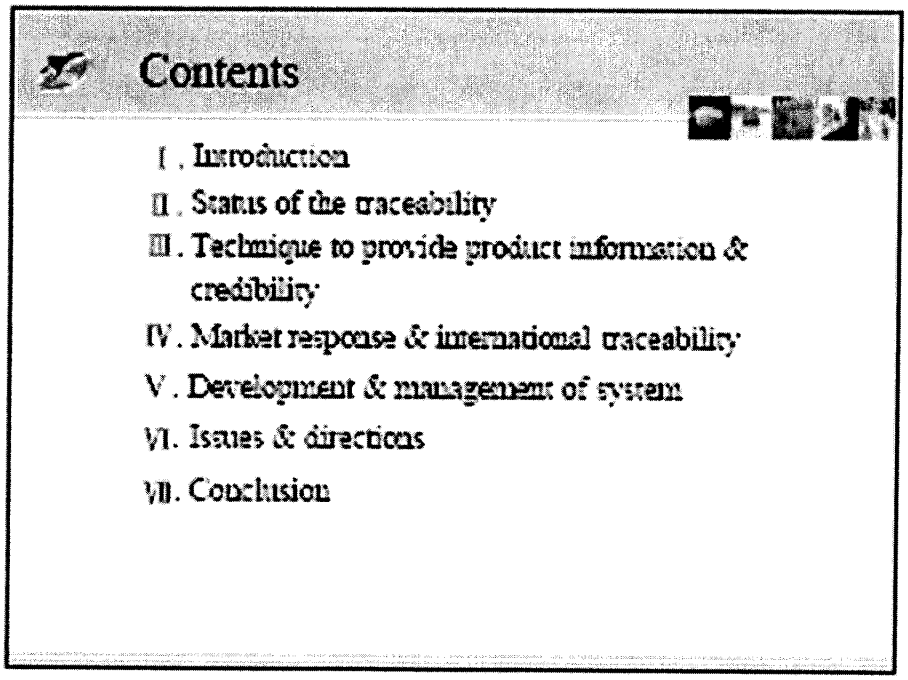
Globalization and international trade

- There is increased food trade between WTO countries
- Customers around the world are demanding safe food
- Companies around the world are responding by implementing food safety management systems to ensure the production of safe food

Thank you very much for your kind attention !

二、 韓國的產品回溯系統現況





Ⅰ. Introduction

- BSE, chemicals, adulterated food marketing
  - ✓ Shrinking consumption
  - ✓ Hitting the related food industries
- Introducing a traceability system
  - ✓ Food security, quality control of whole food supply chain
- Studying and developing a traceability system for beef and fresh vegetables in Korea
  - ✓ Introduction of traceability system : model projects
- The status and directions of traceability for agro-products

Ⅱ. Status of the traceability

Currents

- Exemplary introduction of traceability for Good Agricultural Practice (GAP) farmers (2004)
  - ✓ Vegetables & fruits, exporting vegetables
  - ✓ Formulating of training system (2004-2005)
- Exemplary introduction of livestock products
  - ✓ Korean cattle (2004)
- Full swing of implementation (2005)

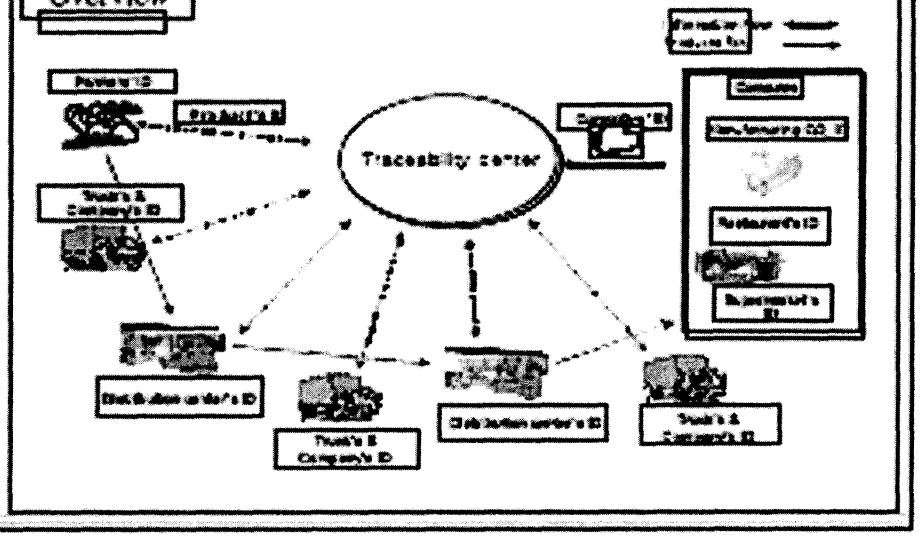
Ⅱ. Status of the traceability

Promotion system

- ❑ Establish a direct link between the production center and the place of consumption
- ❑ Keeps a consistent information flow from the stages of production, distribution, to sales
- ❑ Farmer keeps a record of his products
- ❑ NACF administers selection, packing, distributing products.
  - ✓ introductory stage

Ⅱ. Status of the traceability

Overview



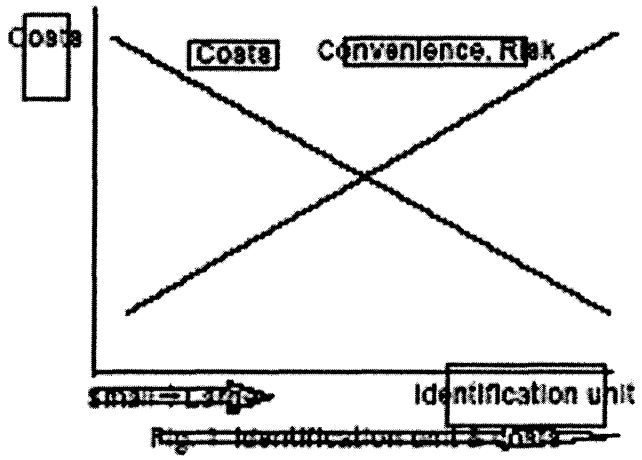
Ⅱ. Status of the traceability

Identification unit & costs

- Identification unit has a deep relationship with costs, labor, etc (Fig. 1)
  - ✓ A smaller identification unit calls for increase in costs & labor
  - ✓ Labeling & bar codes vary according farmers, product items, etc.
  - ✓ Identification is being pursued in classification of farmers concerned, product items, raising systems, etc

Ⅱ. Status of the traceability

Identification unit & costs



Ⅲ. Technique to provide product information & credibility

Dissemination information

- Paper labeling is inexpensive and legible without specific high price equipment
  - ✓ A shortcoming is the possibility of being altered or forged
- Verification tests and studies on RFID (Radio Frequency Identification)

Credibility of information

- Objective improvement on credibility of information that is being provided during the stages of production & distribution
  - ✓ Self-imposed tests
  - ✓ Test result of the authoritative laboratory service
  - ✓ Third party verification

Ⅳ. Market response & international traceability

Response of suppliers

- Exemplary introduction of traceability
  - ✓ MAF, RDA, NACF
  - ✓ Fresh vegetables : lettuces, green onions, tomatoes, fruits
  - ✓ Department stores, supermarket
  - ✓ Customer perception is still low

IV. Market response & international traceability

International traceability

- Customer's anxiety over the international trade of agri-products is growing
- The usual countermeasure is to destroy the entire shipment because selective destruction or efficient traceability is not available
- Traceability system between exporting & importing nations become a reality

V. Development & management of traceability system

Consideration system design

- Information dissemination system, uniformity of the transactional units of products, the credibility of information, etc.
- Technical constraints
  - ✓ Production system
  - ✓ The level of management & information techniques
  - ✓ Pattern of shipping
  - ✓ Distribution system
  - ✓ Linkage with existing information systems

V. Development & management of traceability system

Consideration system design

- Economic constraints
  - ✓ Additional costs and labor by traceability : refined system require increase of costs & labor
  - ✓ Small-scale producers or suppliers: collective and active participation to build the system is recommended

Features of the system

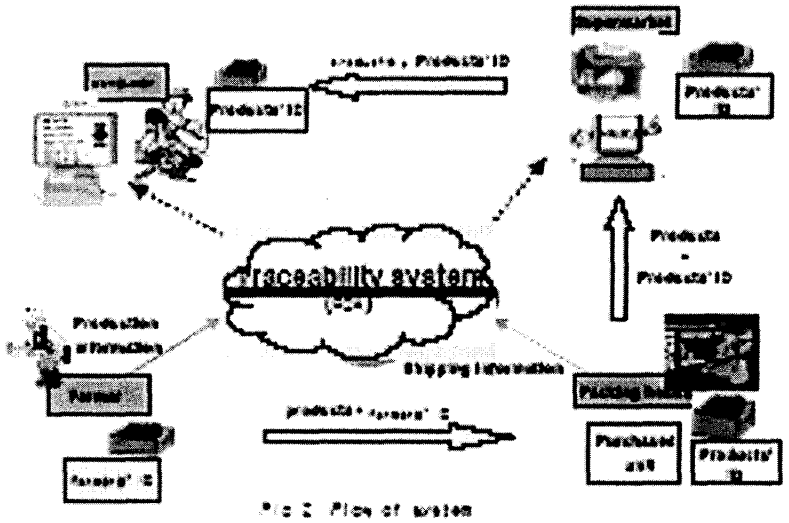
- Main groups to log information are producers, cargo stations (Fig. 2)
- Vegetables, fruits, and provisional crops
- Identification mats are set on the purchased products (plastic bag, container)

V. Development & management of traceability system

Features of the system

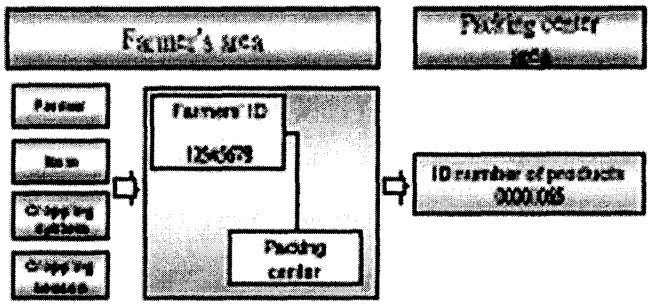
- Information is free for consumers, suppliers
- Additional costs have been reduced to the minimum for the sake of farmers
- Simplified to maximum extent possible to promote convenience for farmers and producer groups
- A public infrastructure that allows farmers equipped with computers to make the internet

V. Development & management of traceability system



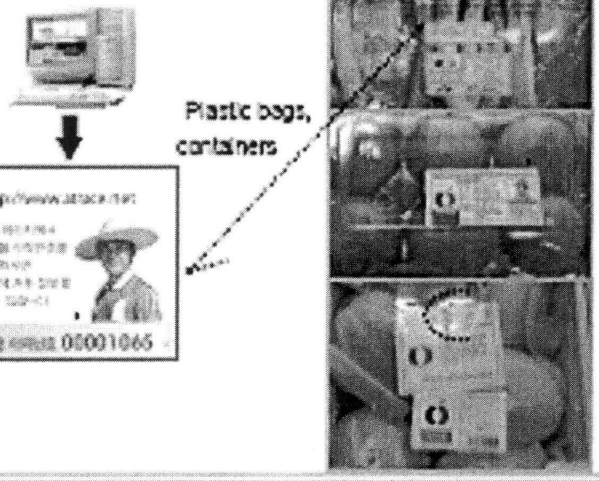
V. Development & management of traceability system

Identification number



V. Development & management of traceability system

Example of labeling



V. Development & management of traceability system

System management

- Four producer groups
  - ✓ D information-oriented agricultural corporation in Kyungbuk (yellow-melon) : logging in & disseminating of information are being carried out by farmers (Fig. 3)
  - ✓ H organic agricultural corporation in Chunnam (green onion, lettuce, tomato, and cabbage) : key role of the packing house for traceability management & its dissemination (Fig. 4)

Fig. 3 Packing unit & display

V. Development & management of traceability system

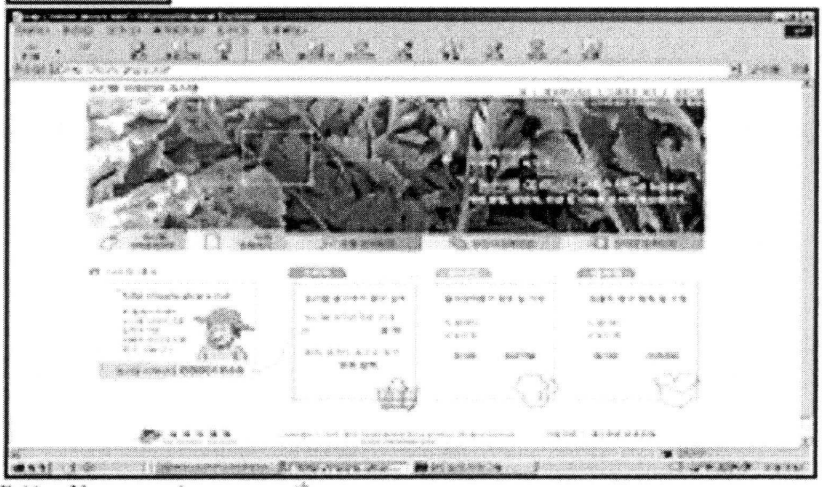
System management

- Four producer groups
  - ✓ B agricultural cooperation in Kyunggi (tomato)
  - ✓ D watermelon farming group in Chungnam : NACF collects information from farming record books & logs in the information on behalf of the farmers

Fig. 4 Cabbage & green onion

V. Development & management of traceability system

Homepage



(http://www.atrace.net)

Ⅴ. Development & management of traceability system

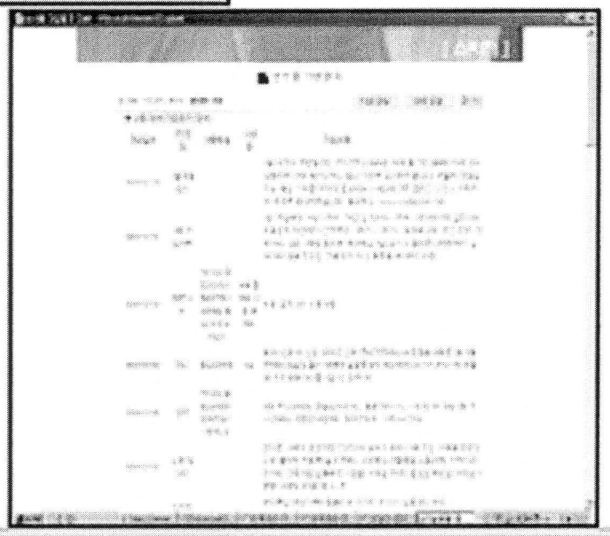
Lists of farmers

Ⅴ. Development & management of traceability system

Product information

Ⅴ. Development & management of traceability system

Farming record keeping



Ⅴ. Development & management of traceability system

Department store (Kwangju)　　Department store (Seoul)

VI. Future issues & directions

- Buildup of the management system & cost sharing
  - ✓ Farmers, processors, distributors, and marketers should closely collaborate with one another
  - ✓ The key role of production center : producer groups, organizations
  - ✓ Distribution stage : positive participation & support of the suppliers
  - ✓ Processed foods : participation & support of the manufacturing companies

VI. Future issues & perspectives

- Credibility of disseminated information
  - ✓ Objective credibility for disseminated information
  - ✓ Checking crop cultivation raising system & use of agricultural chemicals
- Record keeping
  - ✓ Accurate and efficient record keeping of all production information
  - ✓ Automated collection of crop cultivation information & data management in order to reduce farmer's load

VI. Future issues & perspectives

- Linkage with related technology
  - ✓ Agricultural secor, distribution technology, information technology (IT)
  - ✓ A complete chain of traceability : employment & study of RFID
  - ✓ Industrial standardization of traceability & content of information
  - ✓ Traceability standardization of the international trade of agri-products

VII. Conclusion

- The early stage of providing information mainly to

  raise agri-products

- May take some time for traceability system of

  significance to be fully established

- With the advances in IT, traceability of agri-

VII. Conclusion

- To avoid conflicts with international trade :

  uniform standards for traceability by conducting

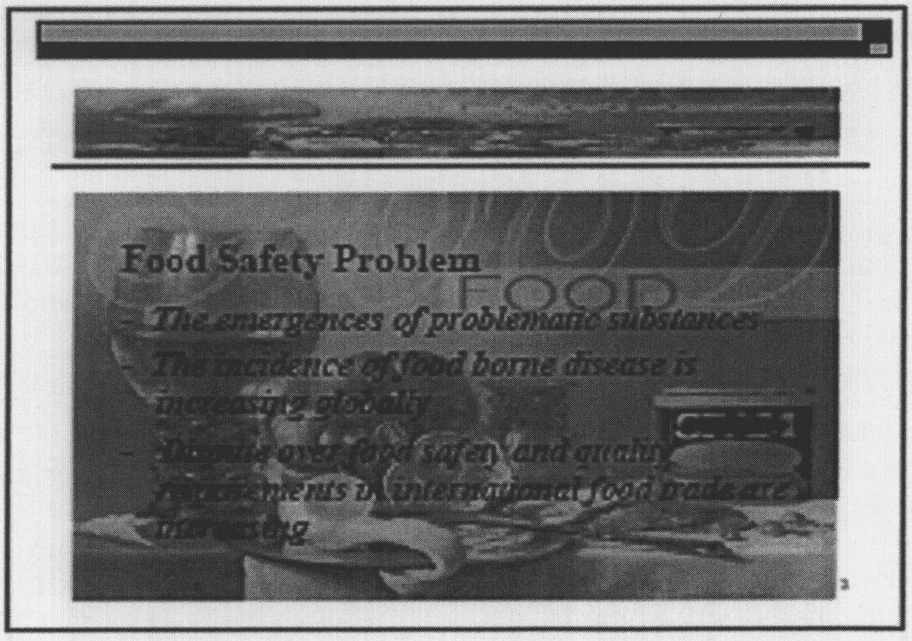
  extensive consultation and collaboration

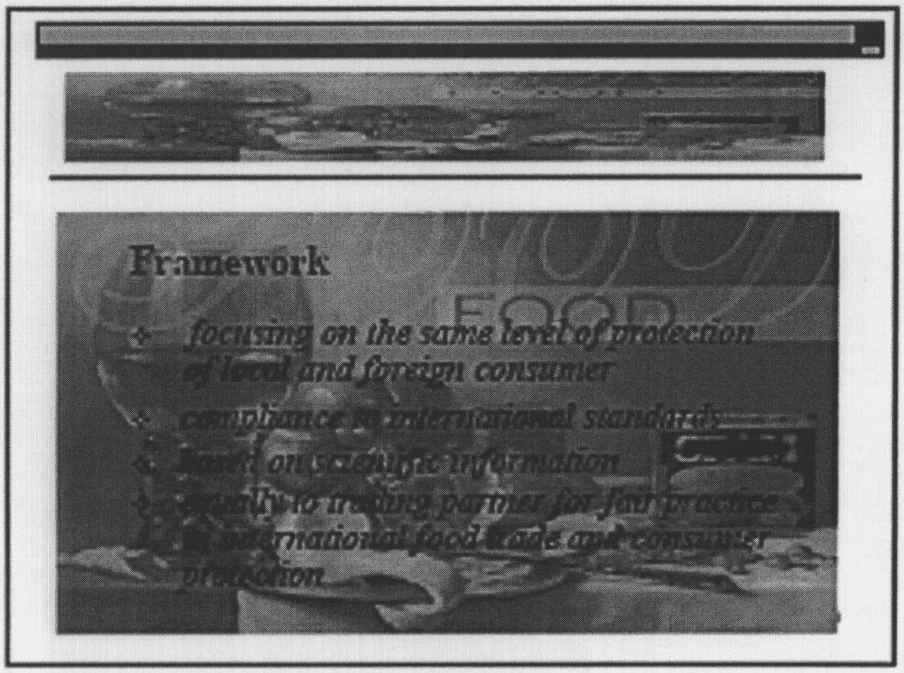
- The system should be improve accurate and

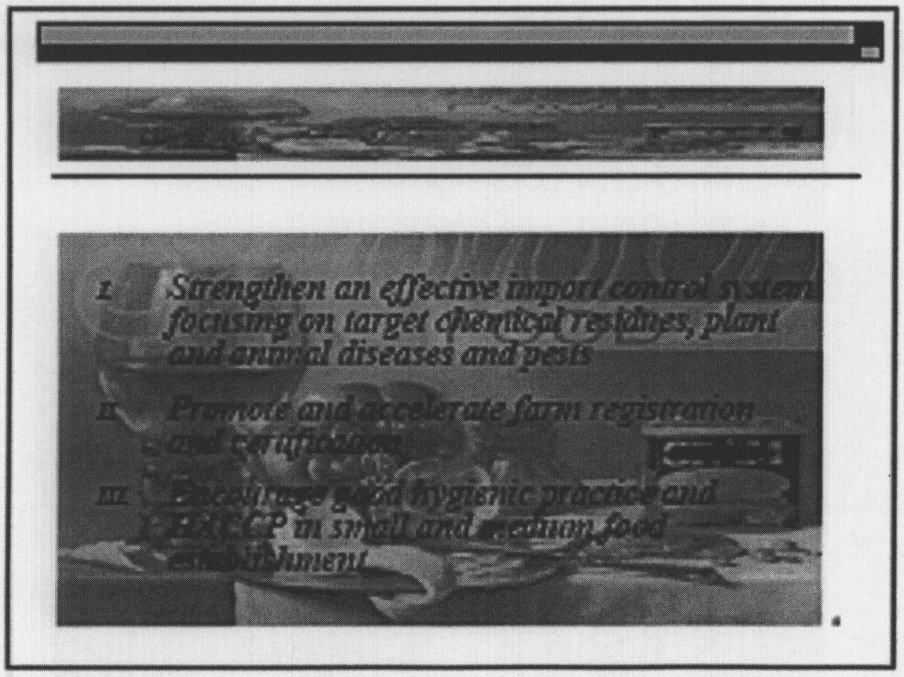
  credible traceability for the entire food supply

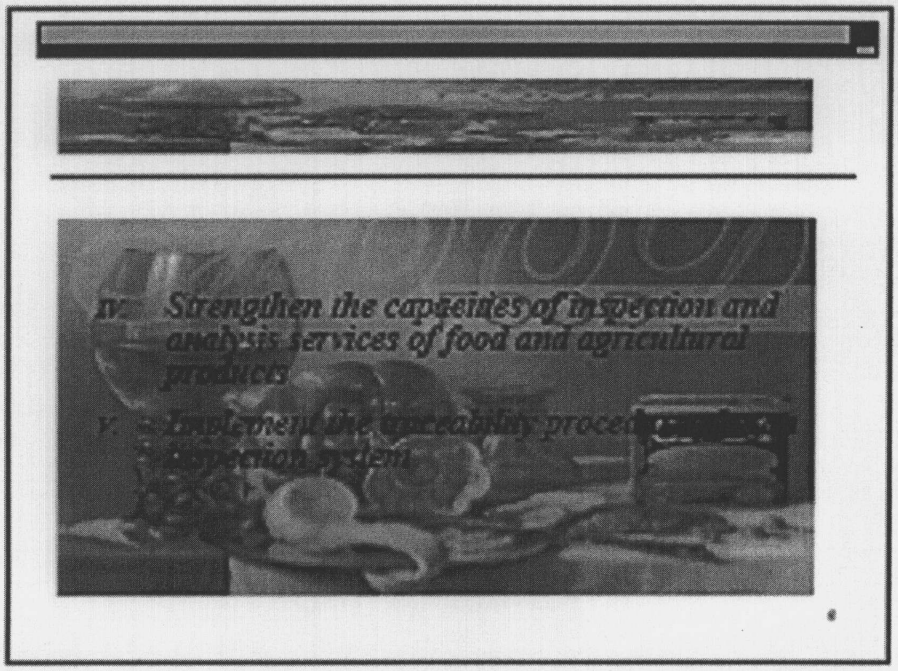
Thank you

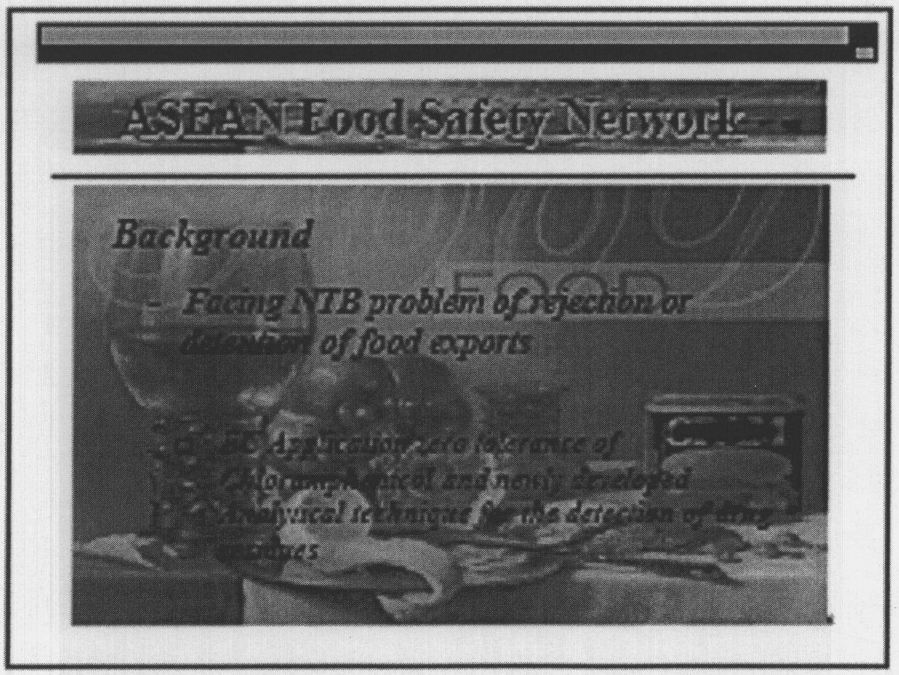
三、泰國的食品安全與回溯的 IT 應用



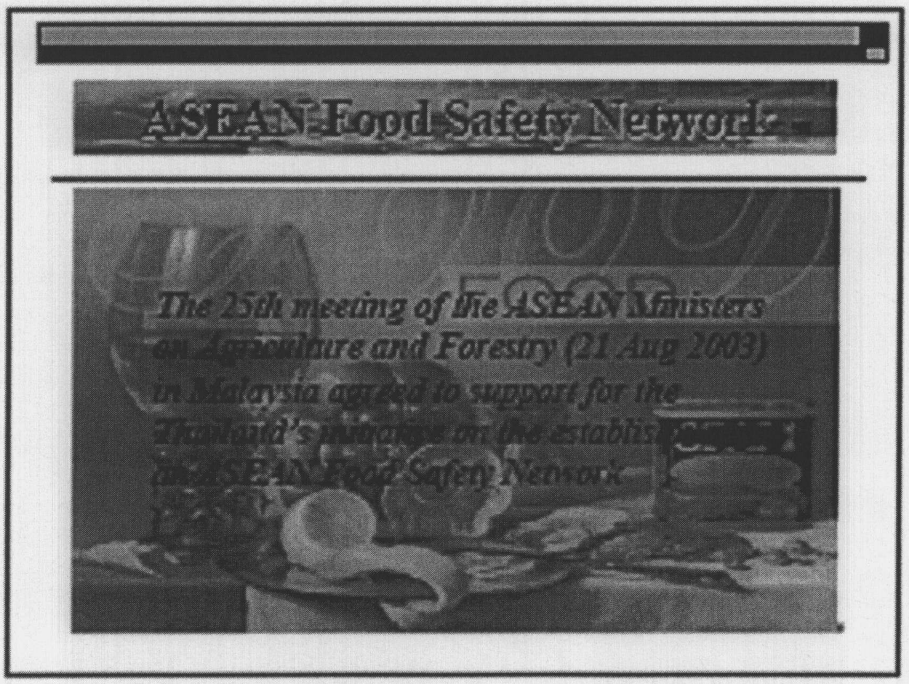

Framework
focusing on the same level of protection of local and foreign consumer
compliance to international standards
based on scientific information
equality to trading partner for fair practice in international food trade and consumer protection

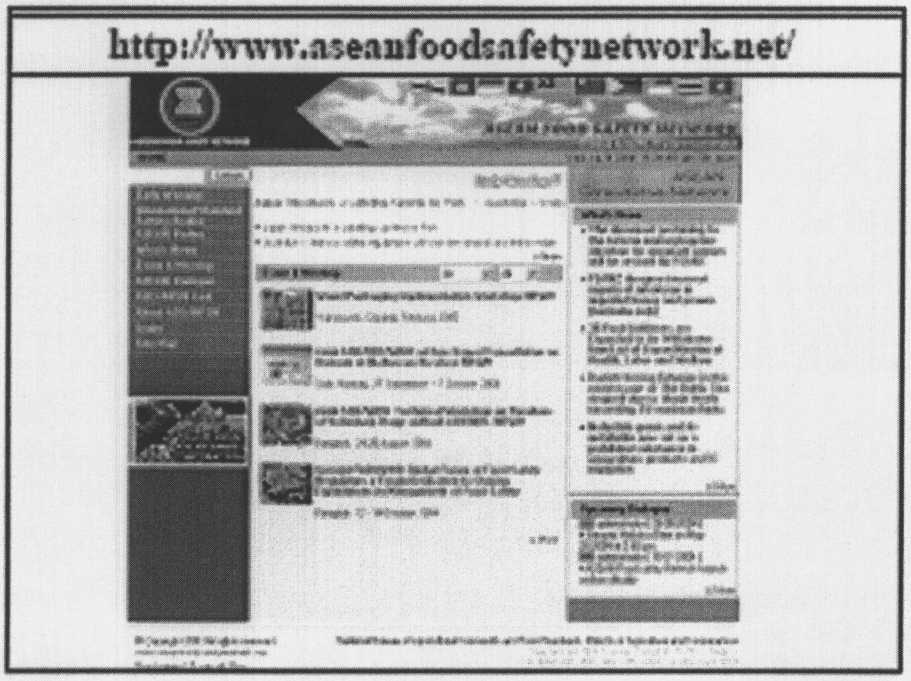

I Strengthen an effective import control system focusing on target chemical residues, plant and animal diseases and pests
II Promote and accelerate farm registration and certification
III Encourage good hygienic practice and GAP in small and medium food establishment

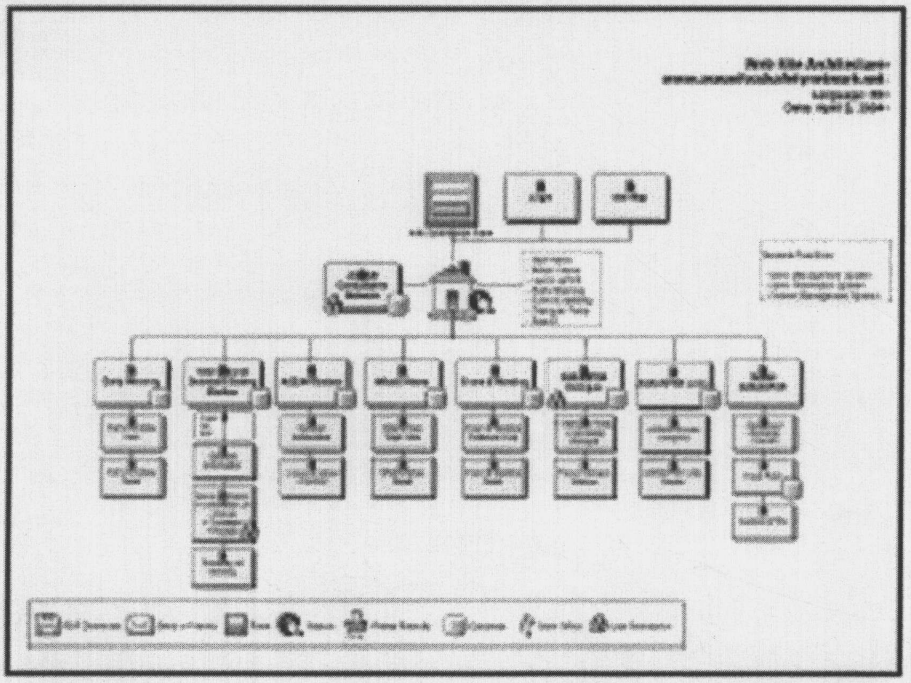

iv. Strengthen the capacities of inspection and analysis services of food and agricultural products

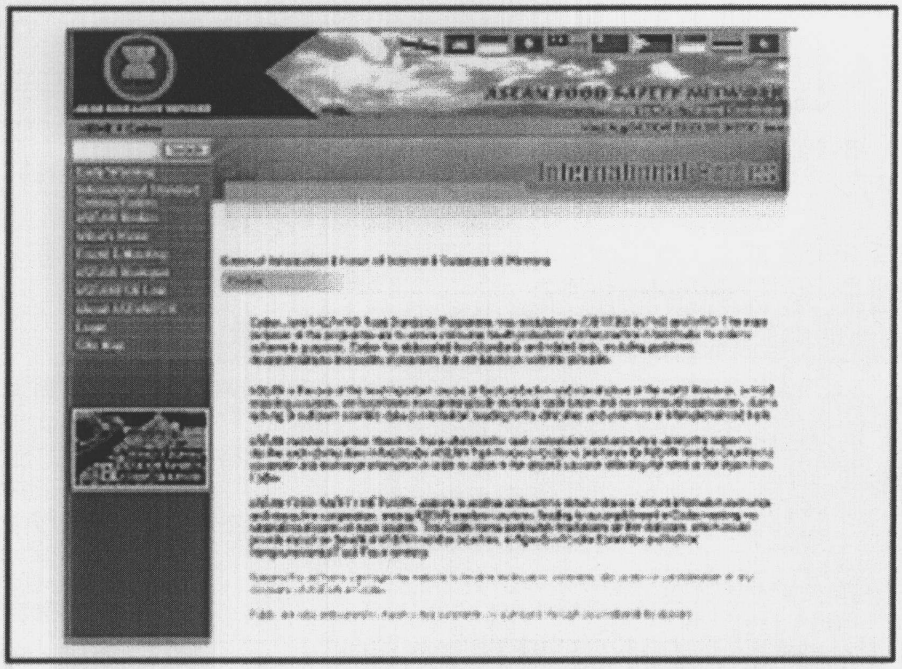

ASEAN Food Safety Network
Background
- Facing NTB problem of rejection or detention of food exports

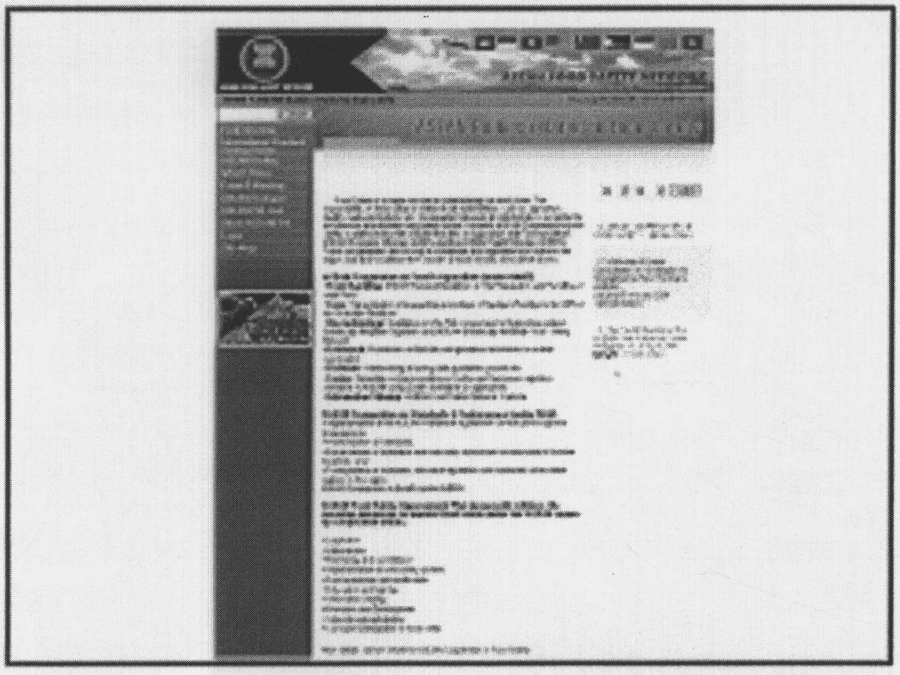
ASEAN Food Safety Network
Several WG or task forces under various ASEAN bodies have been established of which their activities are fully or partly related to food safety

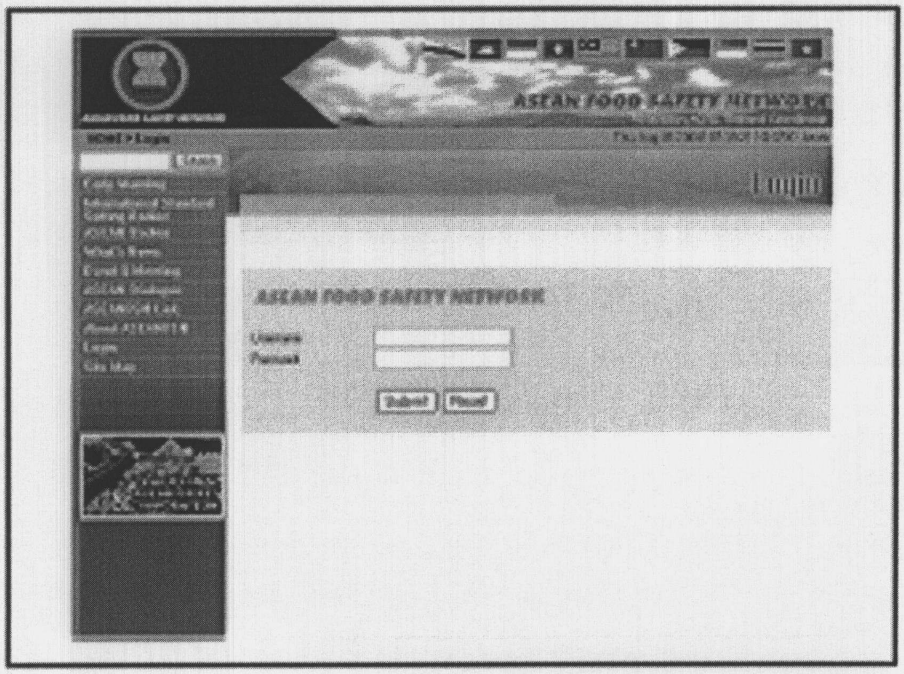

ASEAN Food Safety Network
The 25th meeting of the ASEAN Ministers on Agriculture and Forestry (21 Aug 2003) in Malaysia agreed to support for the Thailand's initiative on the establis
the ASEAN Food Safety Network

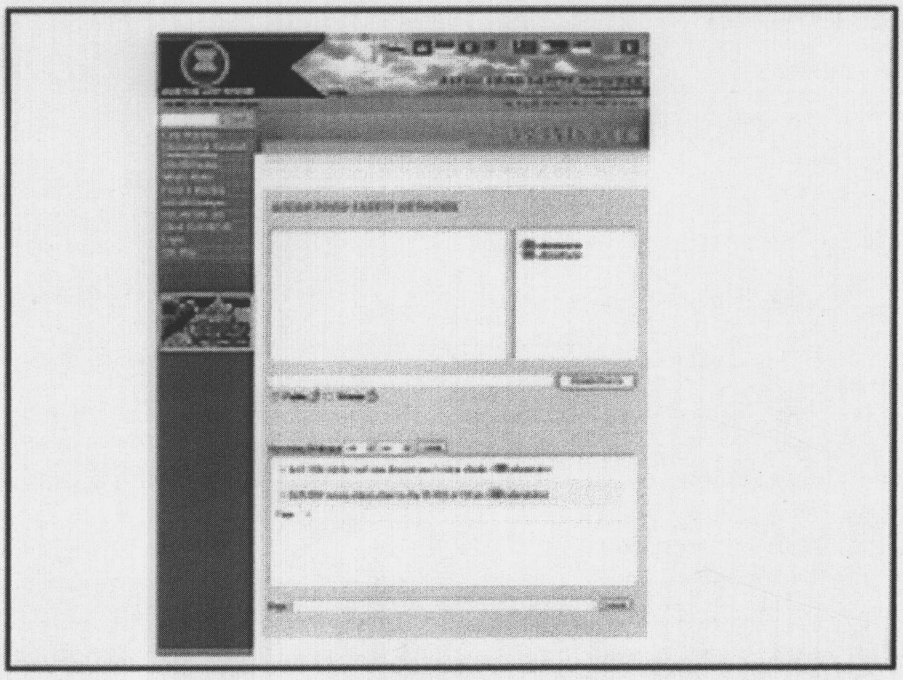

http://www.aseanfoodsafetynetwork.net/

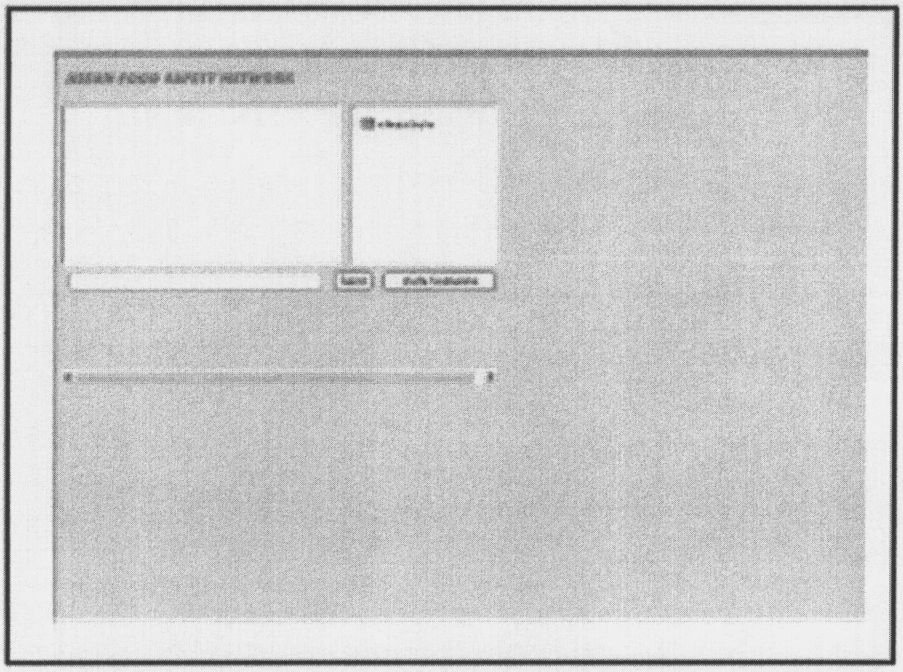


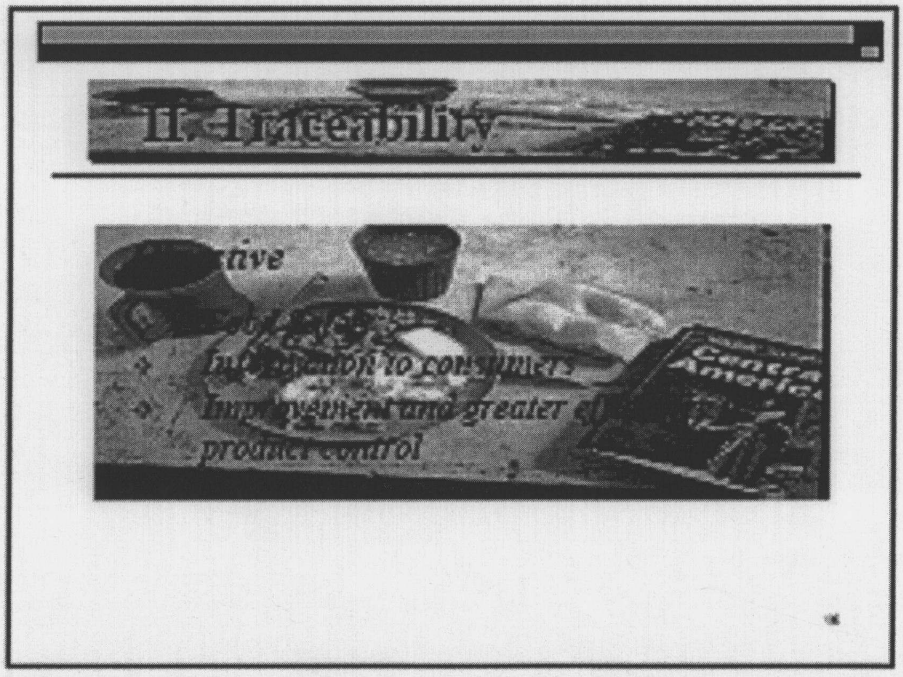





ASEAN FOOD SAFETY NETWORK

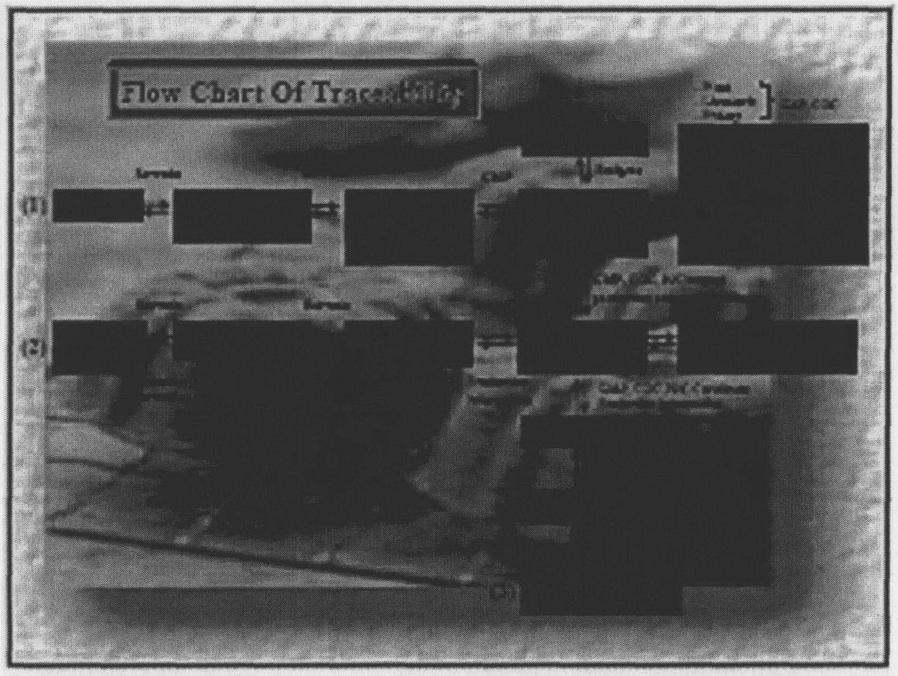


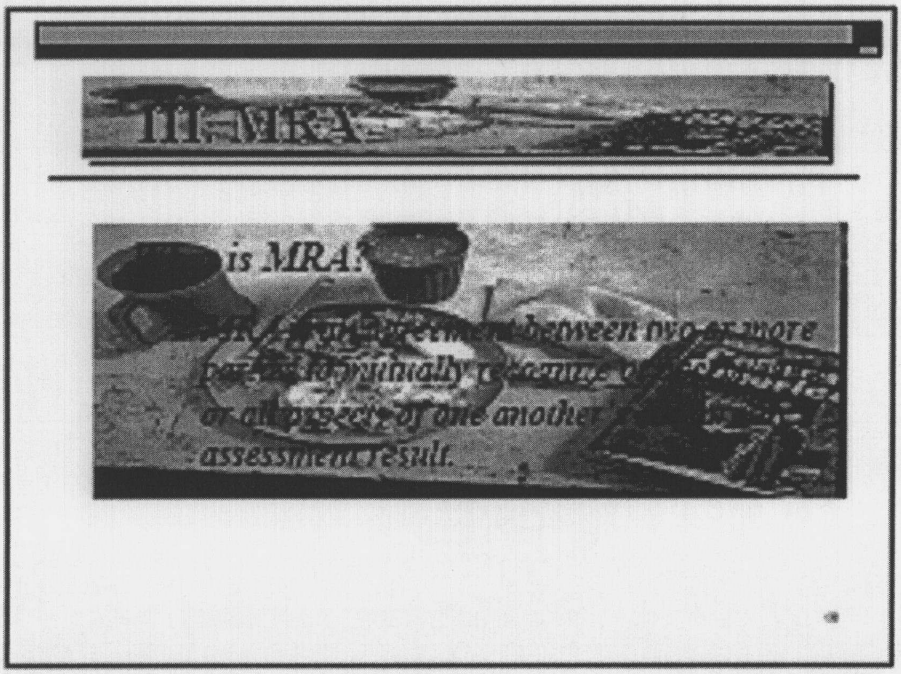
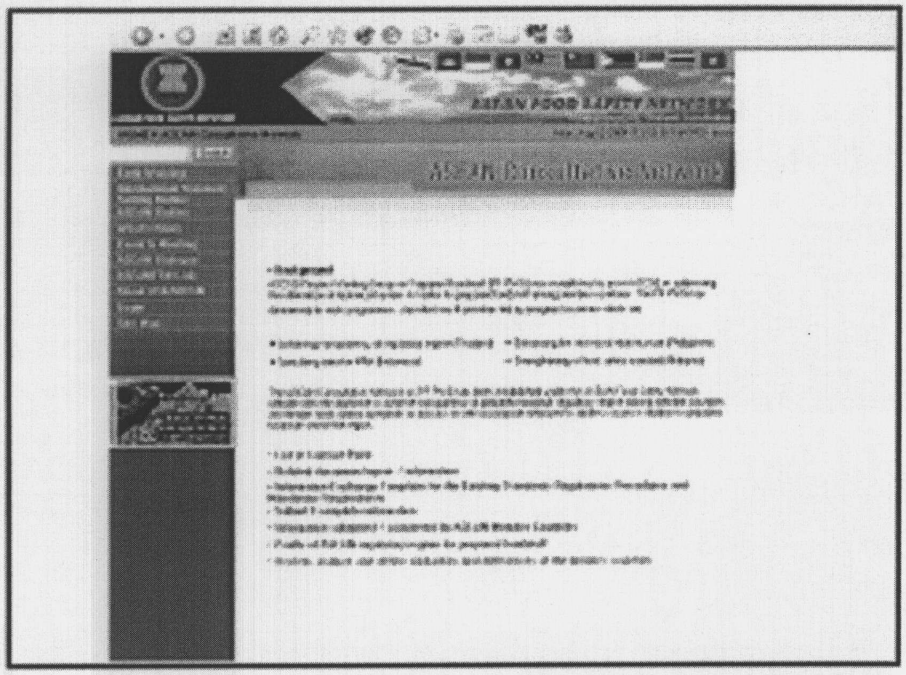
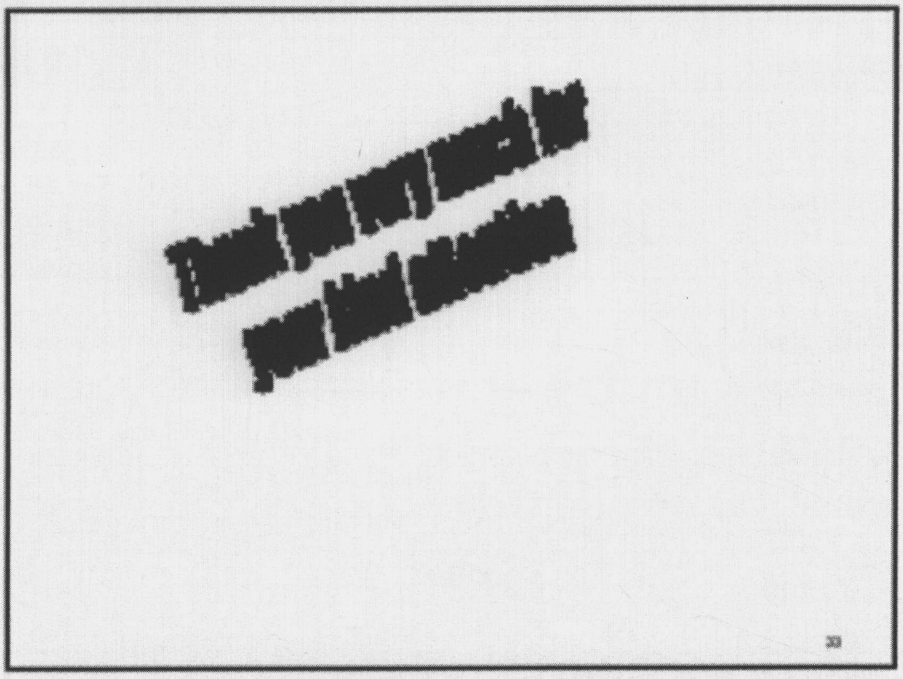

ASEAN FOOD SAFETY NETWORK


Traceability
Central America

II. Traceability (cont.)

ISO 8402: 1994	*The ability to trace the history, application or location of an entity by means of recorded identifications*
CODEX	*The ability to follow the movement of a food through specified stage(s) of production, processing and distribution*




is MRA?
assessment result.

MRA?
Free flow of trade