

Design and Development of Traceability System for Poultry Processors

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Workshop on Development and Application
of Trace Technologies for Food Safety & Quality
16 October, 2008



Agenda

- **overview of Poultry Supply Chain**
- **traceability Systems for Poultry processors**
- **Case Studies**
- **Cost and Perceived Benefits**

Poultry Supply Chain



Breeder Farm



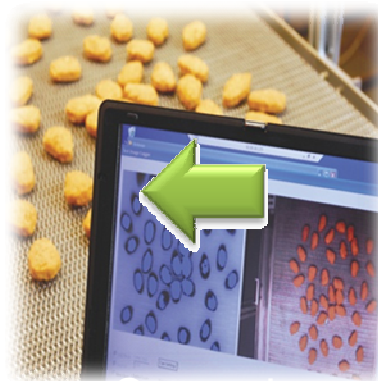
Hatcher
y



Broiler Farm



Retailer



Secondary
y



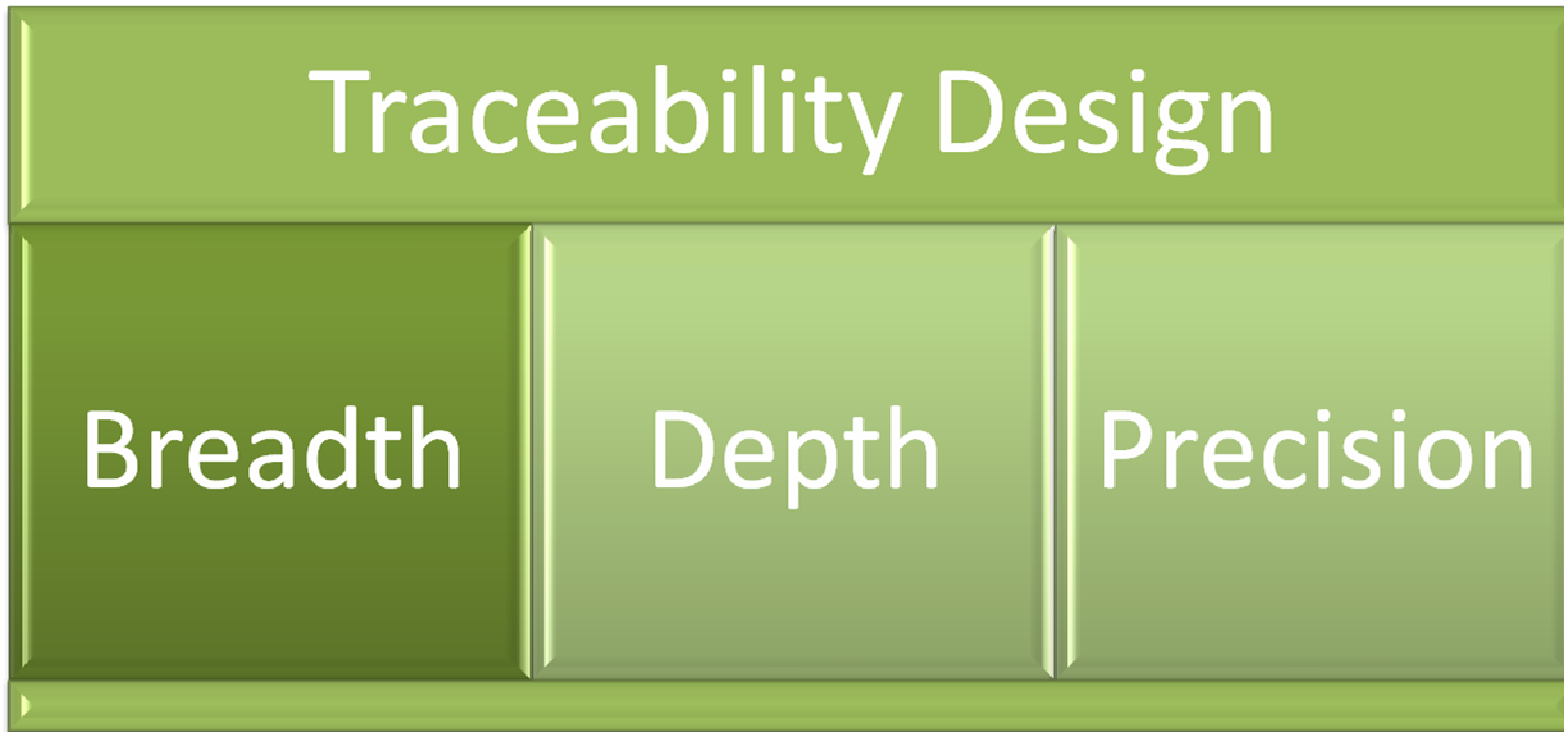
Primary Processor

Traceability Systems

- Structures that facilitate the traceability process.

Traceability Systems





Breadth

- Breadth is the amount of information in the traceability system records.

Breadth

Valuable and important information to be recorded and to be retrieved from the next/previous supply chain

Farm Id	House Id	Harvest Date
Vaccination	Feeds	Source of DOC
Stocking Date	Mortality Rate	Feed Conversion Ratio

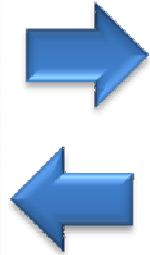
Depth

- Depth is how far back or forward the system tracks.

Full Chain



Breeder Farm



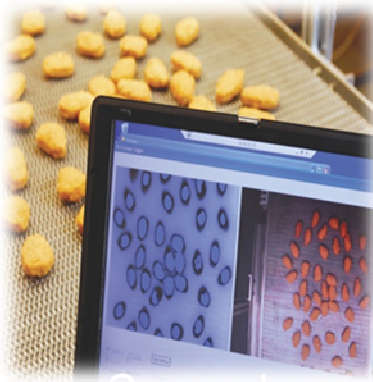
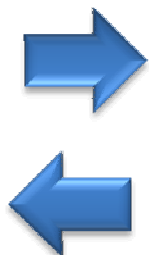
Hatcher y



Broiler Farm



Retailer



Secondary y Processor



Primary Processor

One Step Up & One Step Down



Broiler Farm



Primary Processor



Retailer

Precision

- Precision reflects the degree of assurance with which the traceability system can pinpoint a particular food movement in the supply chain

Precision

The trace unit may be a container, a truck, a crate, a shift, a day production etc



Larger trace unit



Lower precision

Precision



A Crate



A Despatch

Precision



**One Shift
Production**



**One Day
Production**

Precision



A Packet



A Pallet

Precision



A Pallet



A Container

Traceability Systems for Poultry Processors

Primary Production



Primary Production

A Farm



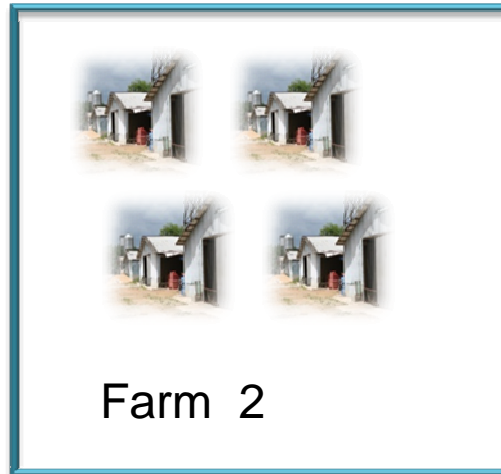
A productive unit made up of one or more houses that hold the broilers

Broilers are raised under same conditions

Isolated either by a perimeter fence or geographically

Primary Production

A Farm



Farm 2



Farm 1



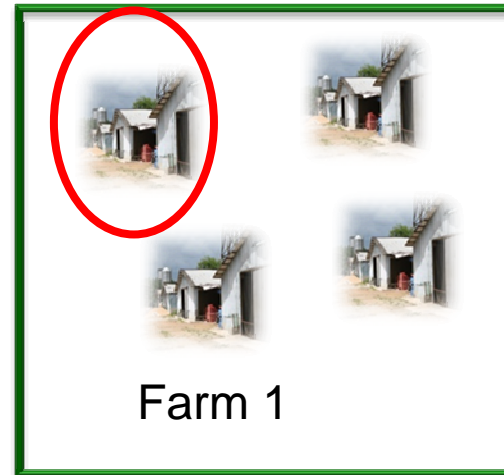
Farm 3

Primary Production

A Batch



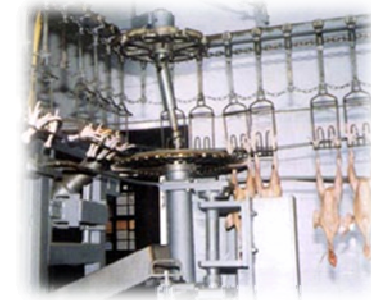
A group of broilers belonging to a given house



Slaughtering Plant



Slaughtering Plant



Slaughter Lot & Slaughter Sub-Lot

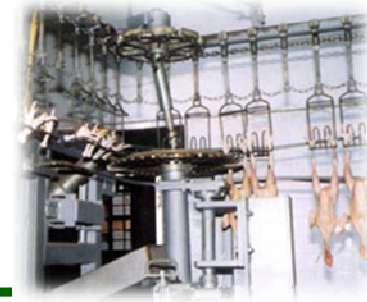
Slaughter Lot

- The number of slaughtered birds on the same day
- Composed of one or more slaughter sub-lots

Slaughter Sub-Lot

- Number of slaughtered birds on the same day
- Originating from one lot or one farm or one delivery

Slaughtering Plant



Production Lot & Production Sub-L

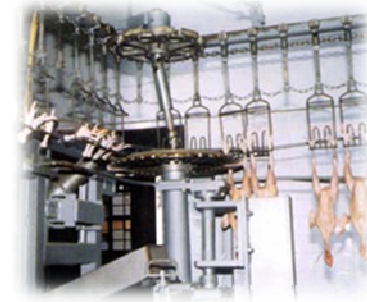
Production Lot

- All products (whole or cut-up, fresh or frozen), originating from one slaughter lot.

Production Sub-Lot

- All products (whole or cut-up, fresh or frozen), originating from one slaughter sub-lot.

Processes Affecting Precision



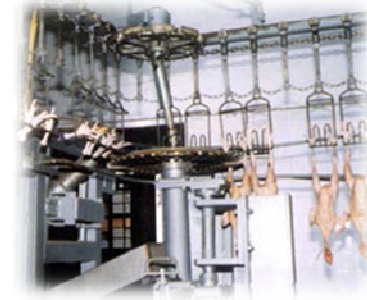
Air Chilling

- Continuous processes
- Carcasses are hang individually
- Separators can be easily applied between each slaughtering sub-lot
- Smaller trace unit, more precision

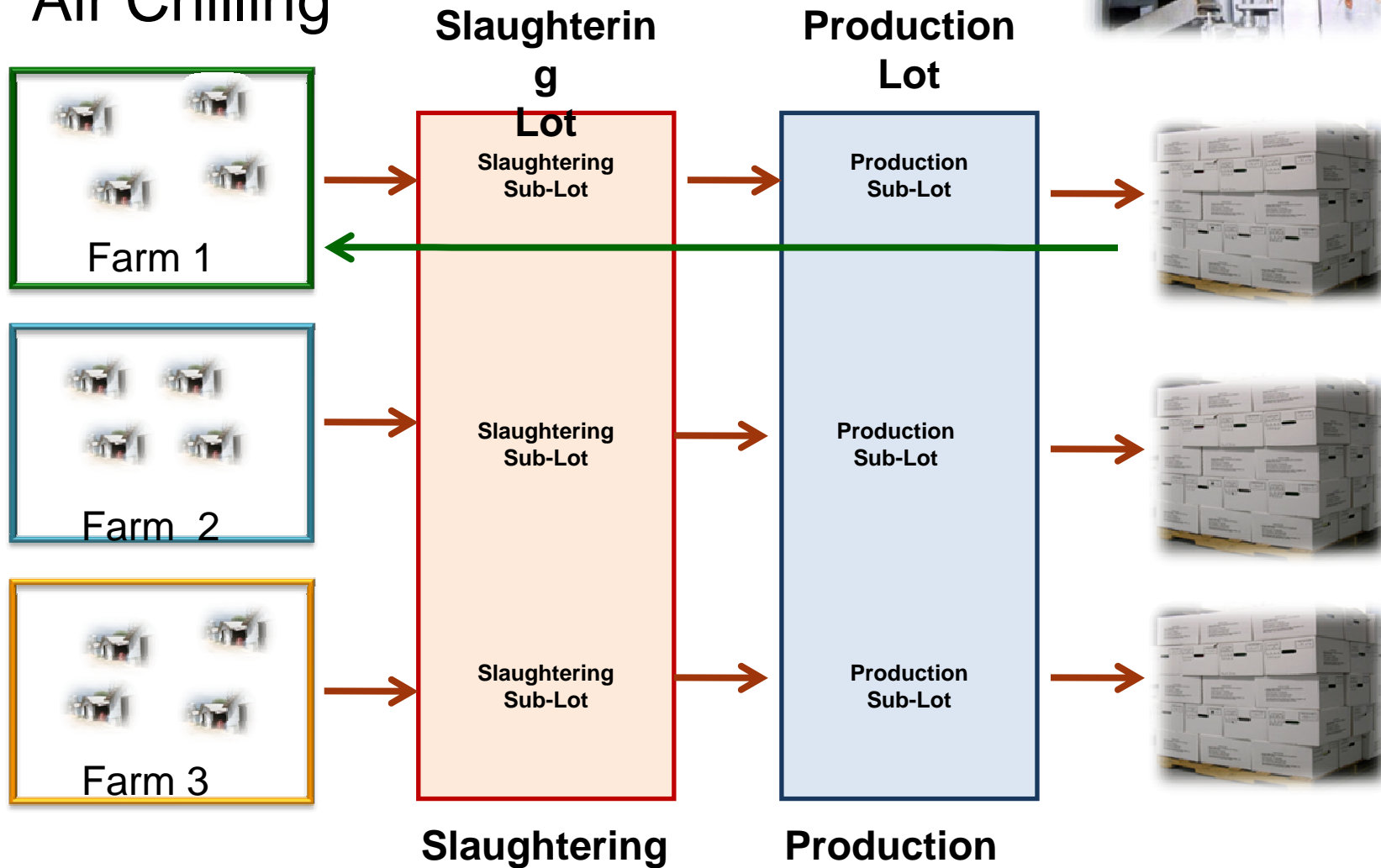
Water Chilling

- Continuous processes
- Mixing of chicken carcasses
- Slaughtering sub-lot difficult to apply
- Larger trace unit, less precision

Slaughtering Plant



Air Chilling



Slaughtering Plant

Air Chilling



Slaughtering

g
Lot

Slaughtering
Sub-Lot

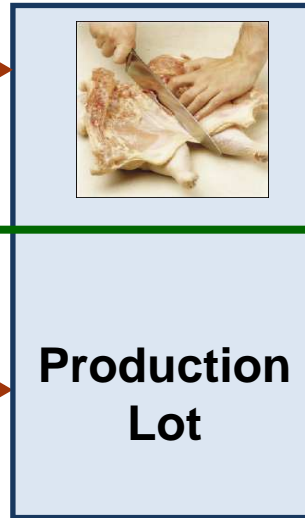
Slaughtering
Sub-Lot

Slaughtering
Sub-Lot

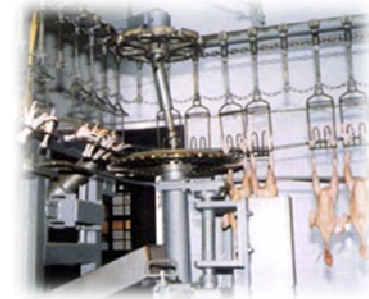
Slaughtering



Production
Sub-Lot

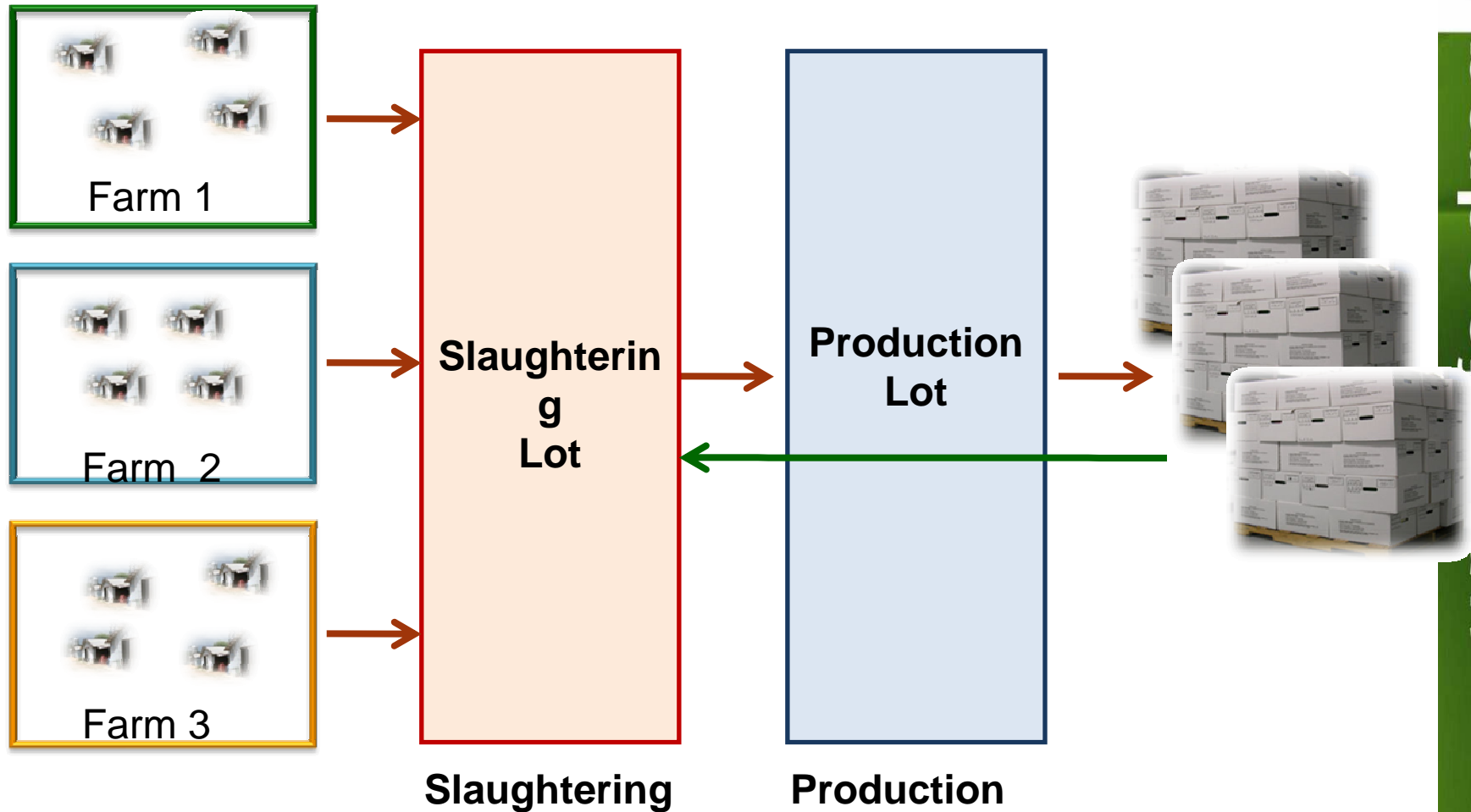
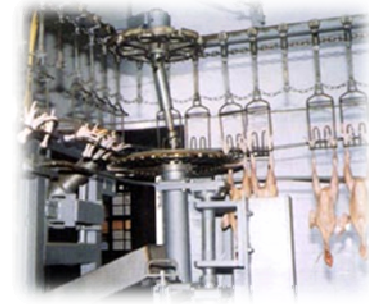


Production

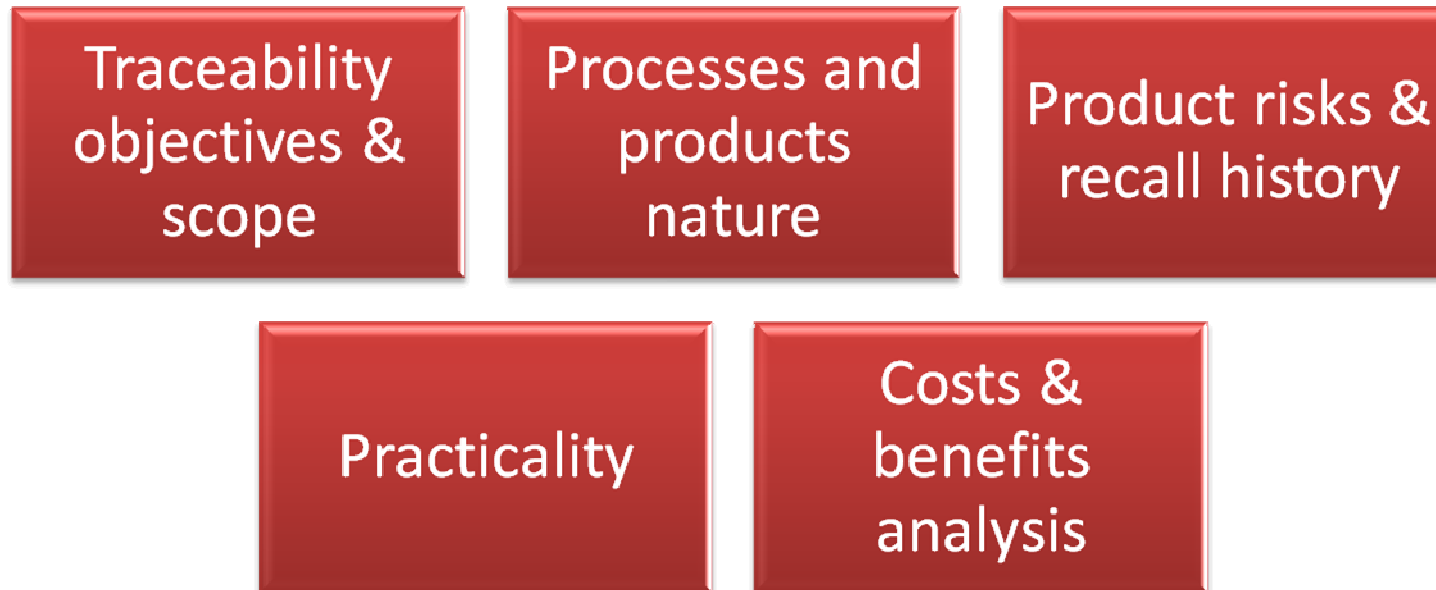
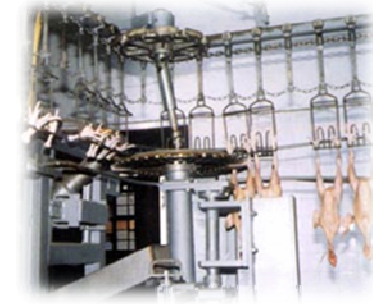


Slaughtering Plant

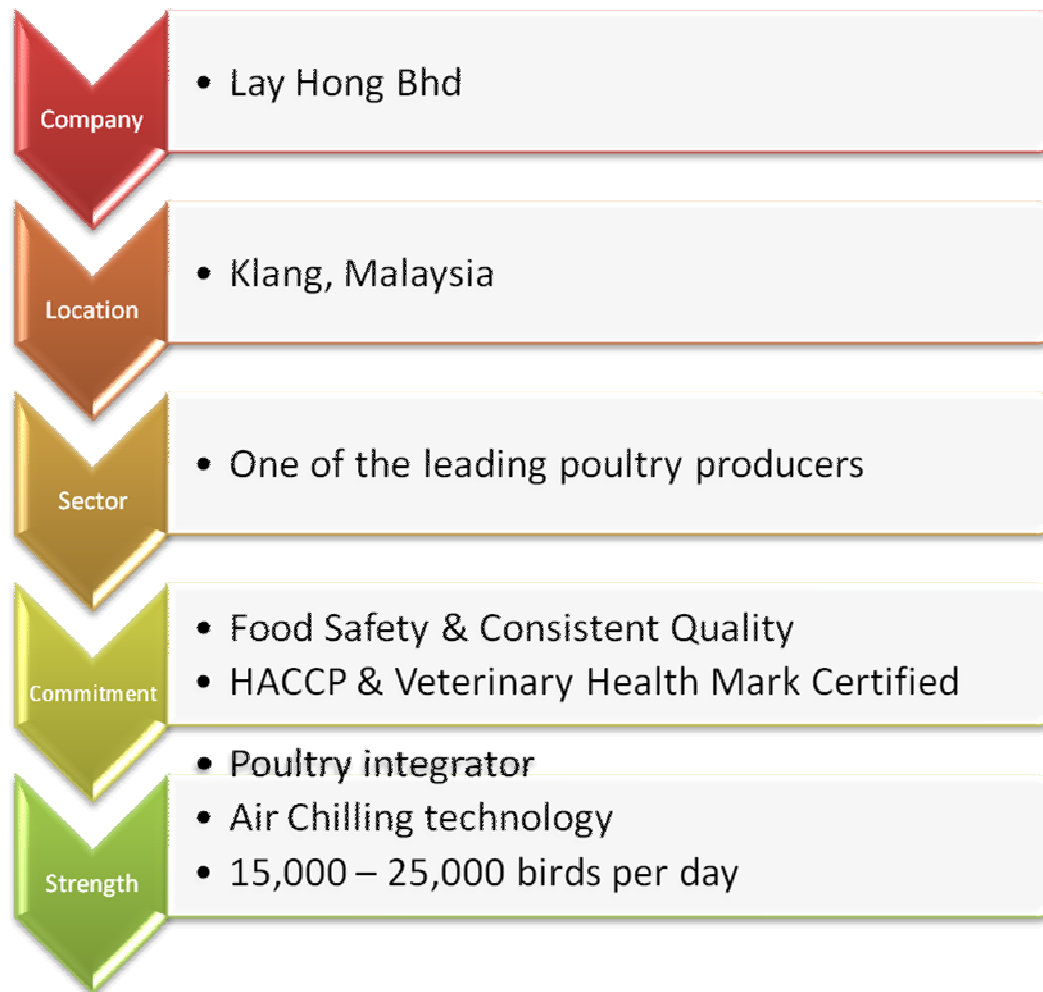
Water Chilling



FBO's Decisions



Case Study Malaysia



Scope



Develop chain traceability

- Breeder farms, hatchery, broiler farms and slaughtering plant

One Product

- NutriPlus Chilled Whole Chicken



Traceability System



Breadth

- Breeder farms - Farm id, house no., parent stock, mortality rate & alerts, egg production and despatch lot id, etc
- Hatchery – Hatcher id, hatching rate, despatch lot id, etc
- Broiler farms – Farm id, house no., mortality rate & alert, feed conversion ration, despatch lot id, etc
- Slaughtering Plant – Halal slaughtering, dead on arrival, HACCP, etc

Depth

- From Chilled Whole Chickens trace back to the parent stock at breeder farms and vice versa

Precision

- Slaughtering lot for NutriPlus Chilled Whole Chicken

How is it done?



FoodReg[®] Language: English (GB) Repository: LHPP01 Site: HQ User: LHPP01

General Data Planning Operations Queries and reports **Basic Traceability** System administration Preferences

Reports Notifications Print Labels Search by reference or tracepoint Advance management

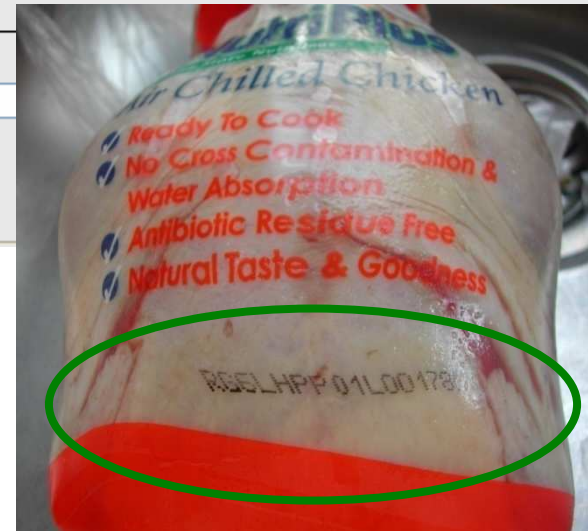
[Basic Traceability](#) > Search by reference or tracepoint

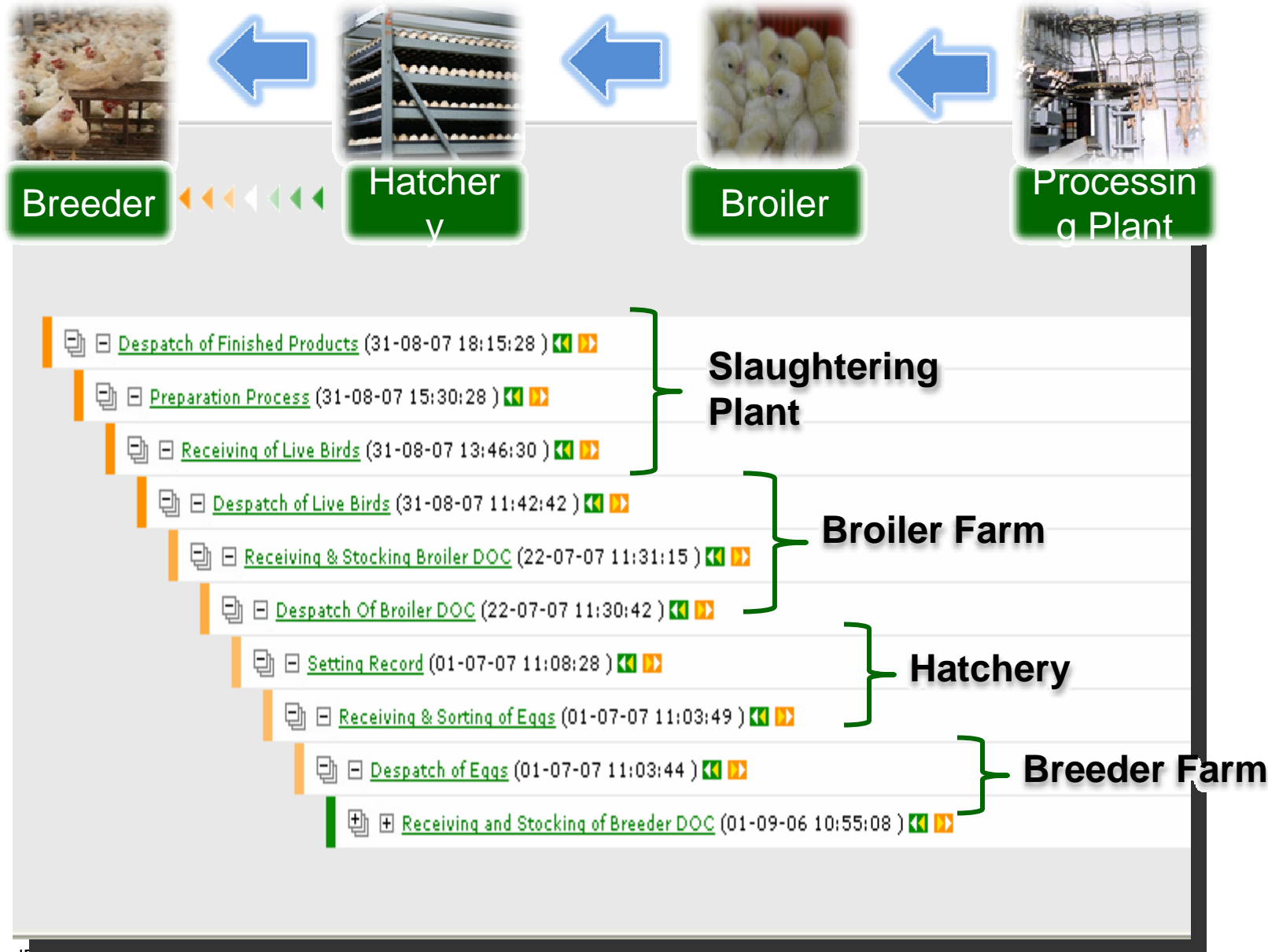
Search references

Search conditions

Reference	Product	Tracepoint
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="button" value="Search"/>	<input type="button" value="Clear"/>	

Enter Lot Id





Results



Mock recall demonstrated to Department of Veterinary Services (DVS)

- Random pick 3 Delivery Orders by the DVS officers
- Enter the unique identification (RG Code) printed on the Delivery Order
- Retrieve all information within a few seconds
- Status: Successful

Production efficiency

- Improve production efficiency
- Alerts to rectify issues

Speed of Traceability

- Manual: on average 1 – 2 hours
- Electronic: a few seconds

Case Study China



Scope

Develop Internal Traceability & Electronic Records

- Internal traceability for further processed product and electronic inspection records

One Product

- Yakitori Chicken



Traceability Systems

Breadth

- Slaughtering Plant – Broiler inspection, material inspection, semi-finished product inspection, processes, finished product inspection & containerization

Depth

- From Yakitori Chicken trace back to the broiler received from which farm(s)

Precision

- Production lot for Yakitori Chicken

Traceability Systems



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管理电子报告板 一般数据 可追溯性 报告 一般规划管理 系统管理 首选

输入数据

流程

- 北京大发正大有限公司肉品事业部流程操作 ▶
- 全部

追溯点 - 北京大发正大有限公司肉品事业部流程操作

- 毛鸡检验单
- 原料检验和收货单
- 辅料检验和收货单
- 流程操作记录
- 成品检验单
- 装箱报告

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How is it done?

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管理层电子报告板 一般数据 可追溯性 报告 一般规划管理 系统管理 首选

报告

报告 > 报告 > 可追溯性报告向导

可追溯性报告向导

搜索条件

ID 如果没有勾选选框, 开始和结束日期将自动计算

9880009(08.03.08)

开始日期 结束日期

搜索 清除



Enter Lot Id



Traceability Reports

[-]	[-]	装箱报告	(08-03-08 17:41:56)	[<<]	[>>]
[-]	[+]	成品检验单	(08-03-08 17:40:08)	[<<]	[>>]
[-]	[-]	流程操作记录	(08-03-08 17:24:54)	[<<]	[>>]
[-]	[+]	原料检验和收货单	(08-03-08 17:22:12)	[<<]	[>>]
[-]	[+]	原料检验和收货单	(08-03-08 17:20:50)	[<<]	[>>]
[-]	[+]	原料检验和收货单	(08-03-08 17:19:01)	[<<]	[>>]
[-]	[-]	辅料检验和收货单	(08-03-08 17:17:33)	[<<]	[>>]
[-]	[-]	流程操作记录	(08-03-08 17:13:21)	[<<]	[>>]
[-]	[-]	原料检验和收货单	(08-03-08 17:10:52)	[<<]	[>>]
[-]	[+]	手鸡检验单	(08-03-08 16:05:34)	[<<]	[>>]
[-]	[-]	辅料检验和收货单	(08-03-08 17:01:01)	[<<]	[>>]
[-]	[-]	流程操作记录	(08-03-08 17:00:00)	[<<]	[>>]
[-]	[+]	原料检验和收货单	(08-03-08 16:57:26)	[<<]	[>>]
[-]	[+]	原料检验和收货单	(08-03-08 16:44:03)	[<<]	[>>]
[-]	[+]	原料检验和收货单	(08-03-08 16:42:35)	[<<]	[>>]
[-]	[+]	原料检验和收货单	(08-03-08 16:41:20)	[<<]	[>>]
[-]	[-]	辅料检验和收货单	(08-03-08 16:25:17)	[<<]	[>>]
[-]	[-]	流程操作记录	(08-03-08 16:23:18)	[<<]	[>>]
[-]	[+]	原料检验和收货单	(08-03-08 16:21:22)	[<<]	[>>]
[-]	[+]	原料检验和收货单	(08-03-08 16:18:45)	[<<]	[>>]
[-]	[+]	原料检验和收货单	(08-03-08 16:17:12)	[<<]	[>>]
[-]	[-]	原料检验和收货单	(08-03-08 16:12:08)	[<<]	[>>]
[-]	[+]	手鸡检验单	(08-03-08 16:05:34)	[<<]	[>>]

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Inspection Report

The screenshot displays a web application interface for inspection reports. On the left, a tree view shows a hierarchy of documents including '装箱报告', '成品检验单', '流程操作记录', and multiple '原料检验和收货单' and '辅料检验和收货单' entries with their respective timestamps. The main window shows a detailed view of a selected '辅料检验和收货单' document.

追溯点	辅料检验和收货单
行动日期	08-03-08 17:01:01
接收辅料记录	<p>供应商 <u>Internal</u></p> <p>收货编号/工艺 DF003A</p> <p>辅料代码+批次 <u>9880003 (2008.03.08)</u></p> <p>9880003 (2008.03.08)</p>
检验阶段	<u>Marination</u>
班组	A
生产数量	600 kg
收货数量	600 kg
检验数量	0 kg
取样数量	
生产日期	
品保期	
原料证书	有子提供? 不

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Results

To be carried out on 17 October, 2008

- Evaluation of system
- Improvements
- Next steps

Costs & Perceived Benefits

Costs & Perceived Benefits

- **Cost to implement traceability system**
 - **Malaysian Poultry operator: 1.44% net profits**

- **Traceability obligatory in EU and countries exporting to EU**

- **But: adoption of electronic traceability very slow**

- **Dilemma: What are the perceived benefits?**

Summary

- **Committed to produce safe & quality food**
- **Little pressure because**
 - **Electronic & manual system in place**
 - **No recall or withdrawal so far**
- **Perceived benefits**
 - **Improved production efficiency**
 - **Improved speedy recall**
 - **Improved food safety**
- **Perceived benefits not strong enough to encourage fast deployment to other poultry products**

Conclusions

Traceability
is not yet
fully
understood

- FBOs currently value cost more than benefit
- Much of the “theoretical” benefits are not *perceived* as such
- Privacy plays an overly big role

Then
traceability
is going to
be big

- Traceability will be the backbone of providing all interested parties with the right information
- Traceability will be a prerequisite, instead of an add-on

Thank You

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