E-Traceability Case Study on Starfruit of

Malaysia Food Information and Traceability (M-FIT) Project

Presented by

Khairuddin Md Tahir

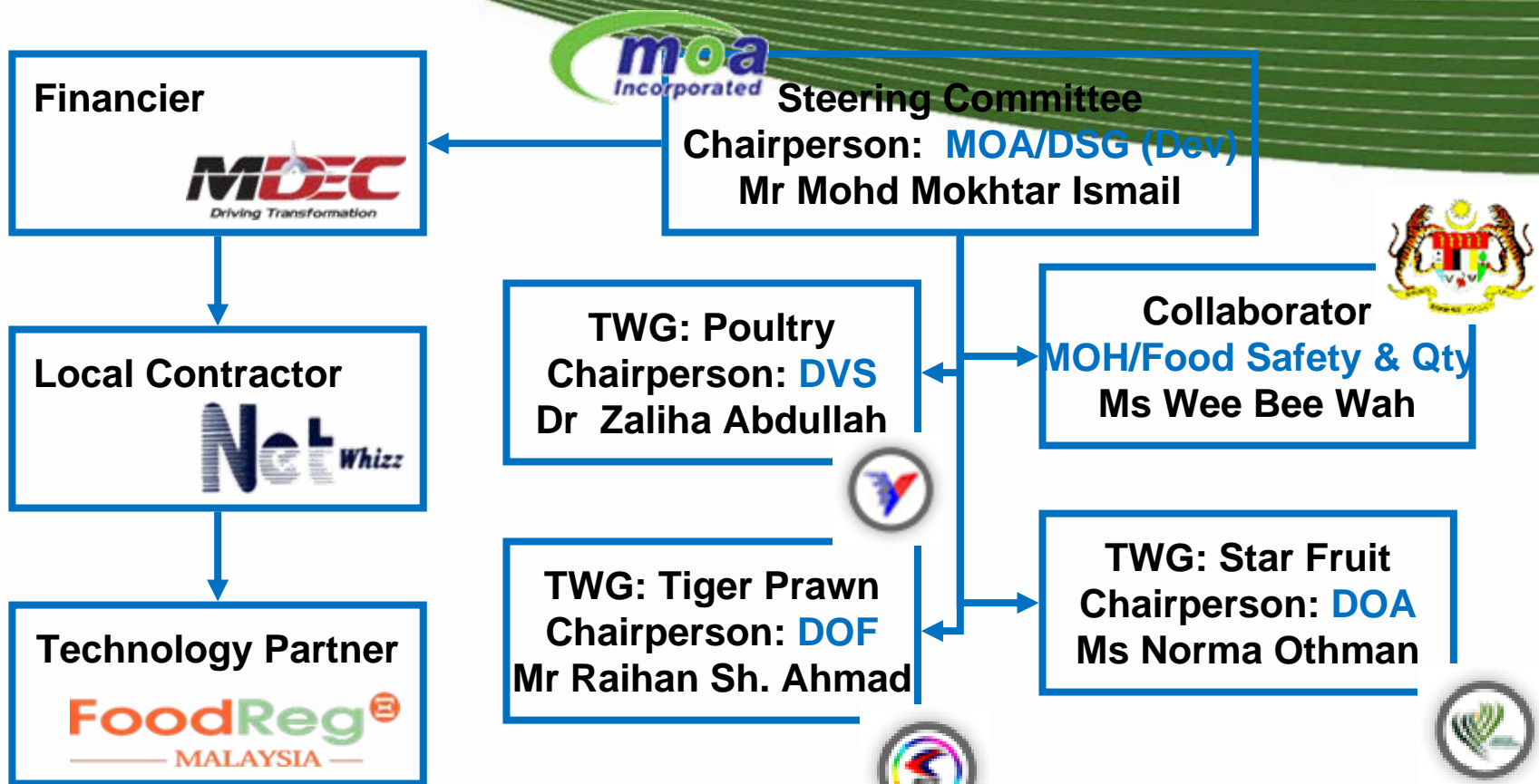17 July, 2007

What is Traceability?

Definition

Traceability (EC/178/2002, implemented 1st Jan, 2005):

The **ability** to **trace and follow** food, feed and ingredients, through all stages of production, processing and distribution.

M-FIT Project - Background

Financier

Steering Committee
Chairperson: **MOA/DSG (Dev)**
Mr Mohd Mokhtar Ismail

Local Contractor

TWG: Poultry
Chairperson: **DVS**
Dr Zaliha Abdullah

Collaborator
MOH/Food Safety & Qty
Ms Wee Bee Wah

Technology Partner

TWG: Tiger Prawn
Chairperson: **DOF**
Mr Raihan Sh. Ahmad

TWG: Star Fruit
Chairperson: **DOA**
Ms Norma Othman

M-FIT Project - Objective

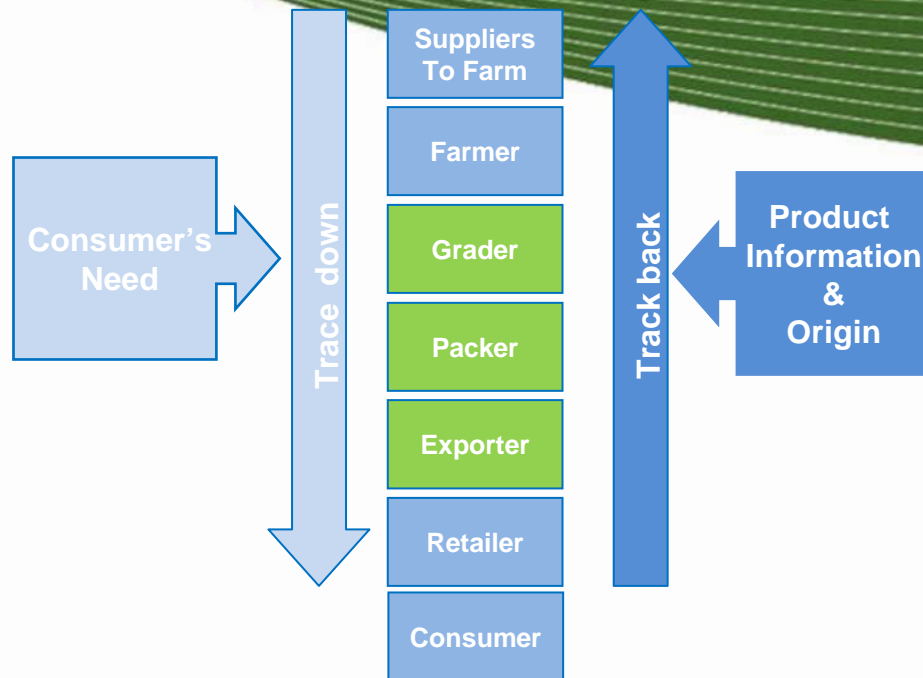Establishing Malaysia as a source of high-quality, safe food products and good environment stewardship

Establish a Malaysian 'Information Hub' serving the entire food chain which will lead to:

Better operational and information processes from farm to fork

Integrated data following international standards

M-FIT Project - Process

Consumer's Need →

Trace down ↓

| Suppliers To Farm |
| Farmer |
| Grader |
| Packer |
| Exporter |
| Retailer |
| Consumer |

Track back ↑

← **Product Information & Origin**

M-FIT - Project Timeline

| 22-Nov, 06 | 28-Feb, 07 | 30-May, 07 | 30-Aug, 07 | 30-Nov, 07 | 30-May, 08 |

Phase 1 Need Assessment & Specification → **Phase 2** System Development → **Phase 3** System Deployment → **Phase 4** Project Hand-Over → **Evaluation**

Prawn | Poultry | Starfruit
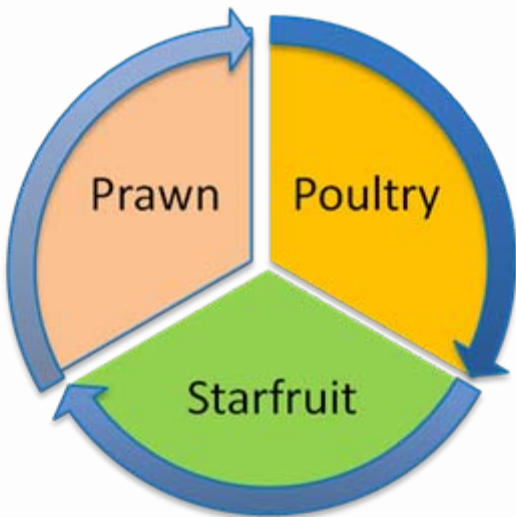
System Implementation to 26 participants from each commodity

Benefits

❖ Continuous improvement on supply chain operation and productivity

❖ Boost export potential, market access & product differentiation

❖ Comply to national & international regulatory requirements of traceability & quality assurance system
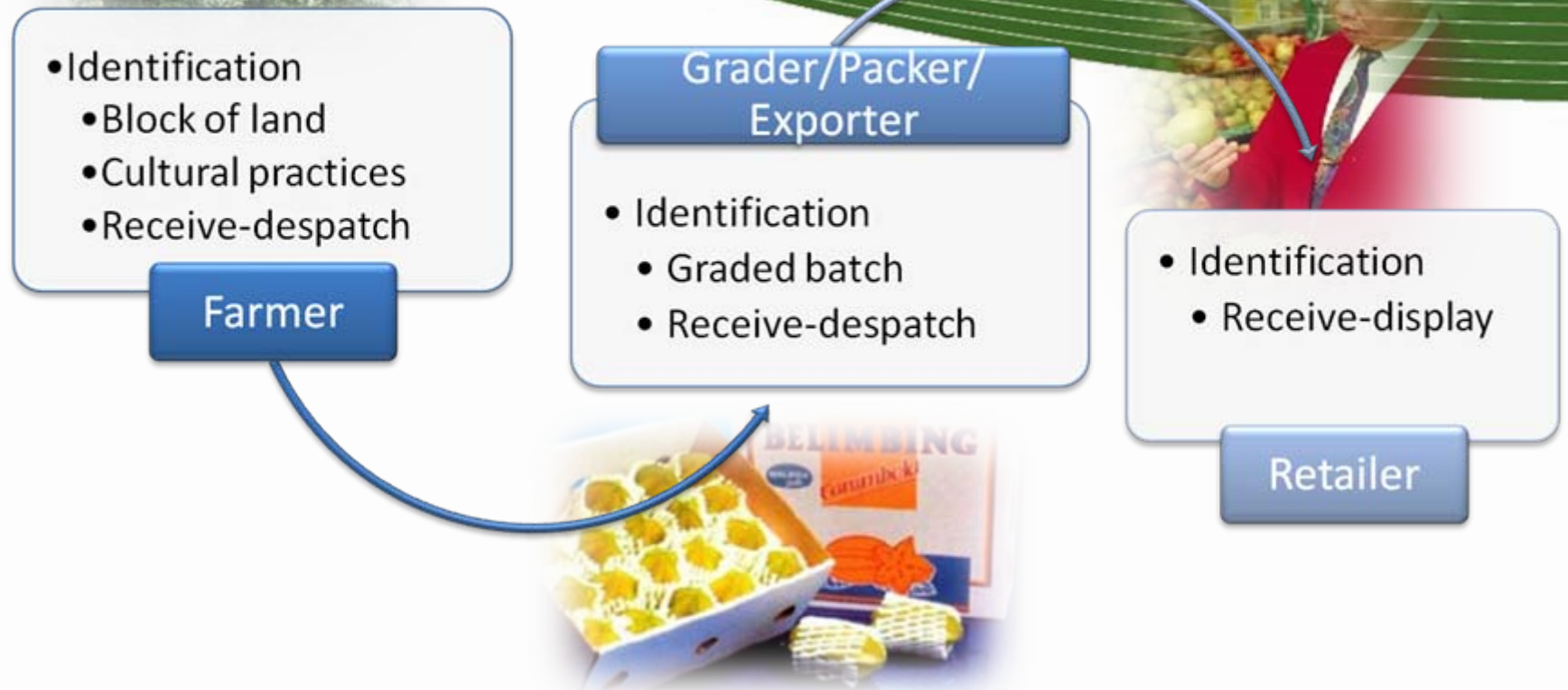
❖ Meeting consumer's demand & expectation

Current Issues

❖ Track back to farm origin

   ❖ Inadequate farm records

      ❖ Farm activities

      ❖ Agricultural inputs

   ❖ Manual system of recording

      ❖ Missing information

      ❖ Slow & tedious

      ❖ Difficult to retrieve

Warning
Pesticide

Traceability System Indicators

- Identification
  - Block of land
  - Cultural practices
  - Receive-despatch

Farmer

Grader/Packer/Exporter

- Identification
  - Graded batch
  - Receive-despatch

- Identification
  - Receive-display

Retailer

TRACK BACK

M-FIT Initial Studies

Need Assessment - Participants

Farmer

Many small farms scatter around various locations in Malaysia

Sample: 14

Average 4 ha (range 2 to 10 ha)

EurepGap & SALM (5) & no certification (9)

Grader/ Packer/ Exporter

Farmers sell their produce to 40 GPE (approx)

Sample: 7

Export: Canada, Netherland, France, Holland, Germany, UK

Local: Retailers

Retailer

GPEs sell produce to retailers

Sample: 2

Hypermarkets / Supermarkets

Challenges & Opportunities

Farmer

GPE

Retailer

❖Most of activities performed at farm level
  ❖Food safety at farm level
  ❖Majority of small farmers not IT literate

❖These small farmers work closely with GPE to perform related record keeping

❖Meeting importer's requirement on traceability (bar coding system)

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M-FIT System Deployment & Findings

Secured Access

General Data

Operation Data

Generate Reports

Secured Access to M-FIT System

Example of General Data

Secured Access

General Data

Operational Data

Generate Reports

| Create Pesticide Chemical | Import data | Export data |

Name ▲▼☒	Description ▲▼☒	Code ▲▼☒
CONTEST	EMULSiFIABLE CONCENTRATE (EC). Contains 5.5% w/w cypermethrin. Gazetted on 1 Nov, 2005 and expired on 31 Oct, 2010	50EC

Standard name ▲▼☒	Pesticide Registration No. ▲▼☒	Active ingredient ▲▼☒	Pre-Harvest Interval (days)
CONTEST	4117	Cypermethrin	14

Farm Operations
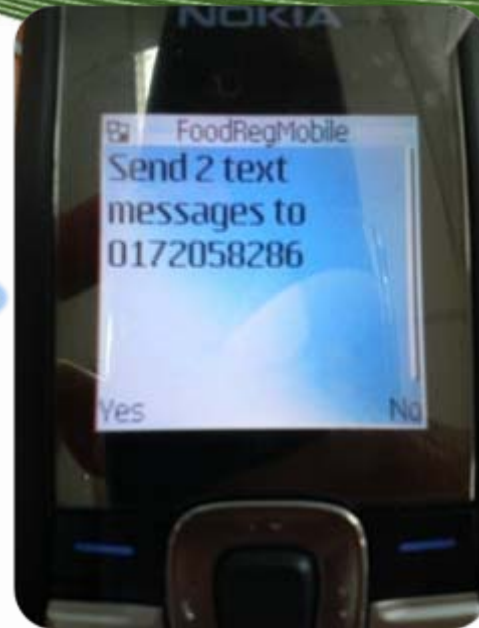## Example - Spray Pesticide
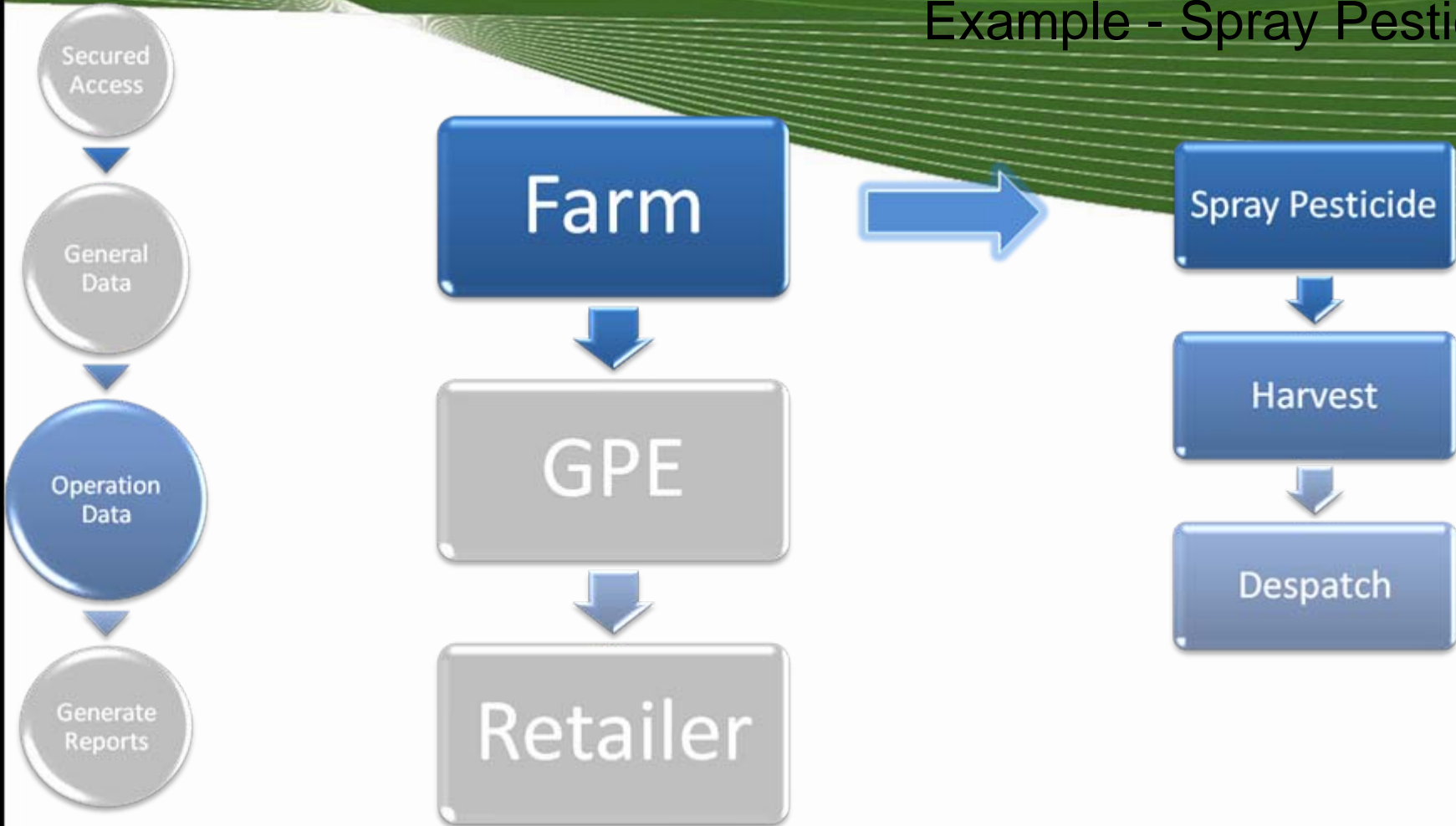
Mobile Phone Data Entry
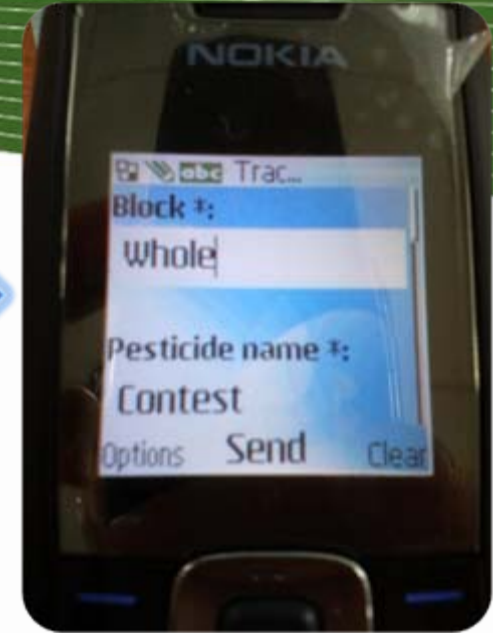
| Download farm operations | Select farm operations | Enter data |

Mobile Phone Data Entry

Enter data → Send data to server via SMS → Return receipt to indicate data successfully captured

Computer Data Entry – Farm Operations

Main menu | General Data | System administration

Enter data

Example - Spray Pesticide

Spray Pesticide

Harvest

Despatch

Tracepoints - Farm Activities	Enter data
SF Land Preparation	
SF Soil Fumigation (if applicable)	
SF Training of Farm Workers	
SF Planting	
SF Substrate sterilization (if applicable)	
SF Receive	
SF Irrigation	
SF Cultural Practices	
SF Fertilization	
SF Pesticide Spraying	
SF Pest Surveillance	
SF Harvest	
SF Farm Waste Management	
SF Produce Analysis Sampling	
SF Produce Analysis Sampling Result	
SF Despatch	

List of farm activities to be recorded at farm level as per requirements in Good Agricultural Practice (GAP)

Spray Pesticide

Spray Pesticide

Harvest

Despatch

SF Pesticide Spraying	
Date of action ▶	26-06-2007 16:18:35
Where ▶	Block ▶ [▼]
	Sub-block ▶ [▼]
Crop ▶	[▼]
Pesticide data ▶	Type/brand of pesticide ▶ [▼]
	Pesticide received ID [ ]
	Target pest ▶ [▼]
	Quantity of pesticide ▶ [ ] [▼]
	Quantity of water (gallon) ▶ [ ]
	Spraying method ▶ [▼]
	Equipment used ▶ [▼]
Who ▶	[▼]
Comments and attached documentation	⊞ [More]
	Skip summary review □

Location →

Pesticide →

Quantity →

Harvest

Spray pesticide

Harvest

Despatch

SF Harvest

Date of action 🚩	02-07-2007 19:32:01 📅
Where 🚩	Location → Block 🚩 [▼] 📄 ▶
	Sub-block ▶ [▼] 📄 ▶
Harvest data 🚩	Crop 🚩 [▼] 📄 ▶
	Bar Code for Harvesting Batch → Harvest lot ID 🚩 [ ] [Generate]
	[Print label]
	RG7-UPANDUP-H00001-3
	H00-001-3
	Quantity harvested 🚩 [ ] [▼]
	Method of field transport 🚩 [▼] 📄 ▶
	Equipment used 🚩 [▼] 📄 ▶
	Last harvest? 🚩 ☐
Who ▶	0 items 📁 Add
Sell to ▶	[▼] 🔍 ▶
Comments and attached documentation	⊞ [More]

Skip summary review ☐

Despatch

SF Despatch

Date of action 🚩	02-07-2007 19:37:18 📅
To whom 🚩	GPE → Customer 🚩 [▾] 🔍 ▶ Despatch ID 🚩 [_____]
What 🚩	0 items 📁 Hide entry 🚩 No entries found Produce [▾] 📄 ▶ Add Harvest lot ID [_____] Quantity [____] [▾]
How	⊞ [More]
Worker 🚩	0 items 📁 Add
Verified by 🚩	Username Password [_____] [_____]
Comments and attached documentation	⊞ [More]

Bar Code for Harvesting Batch →

RG7-UPANDUP-H00001-3
H00-001-3

Spray pesticide

Harvest

Despatch

Grader/Packer/Exporter

Farm B   Farm C

Farmer

Farm A

Farm D

GPE

Receive

ID A with Brand A

Grade & Pack

ID B with Brand A

Retailer

Despatch

ID D With Brand A

Computer Data Entry - GPE Operations

Example – Grading & Packing

List of operations carried out by GPE

Grading & Packing

Retailer

Farmer → GPE → Retailer → Receive → Display → Customer
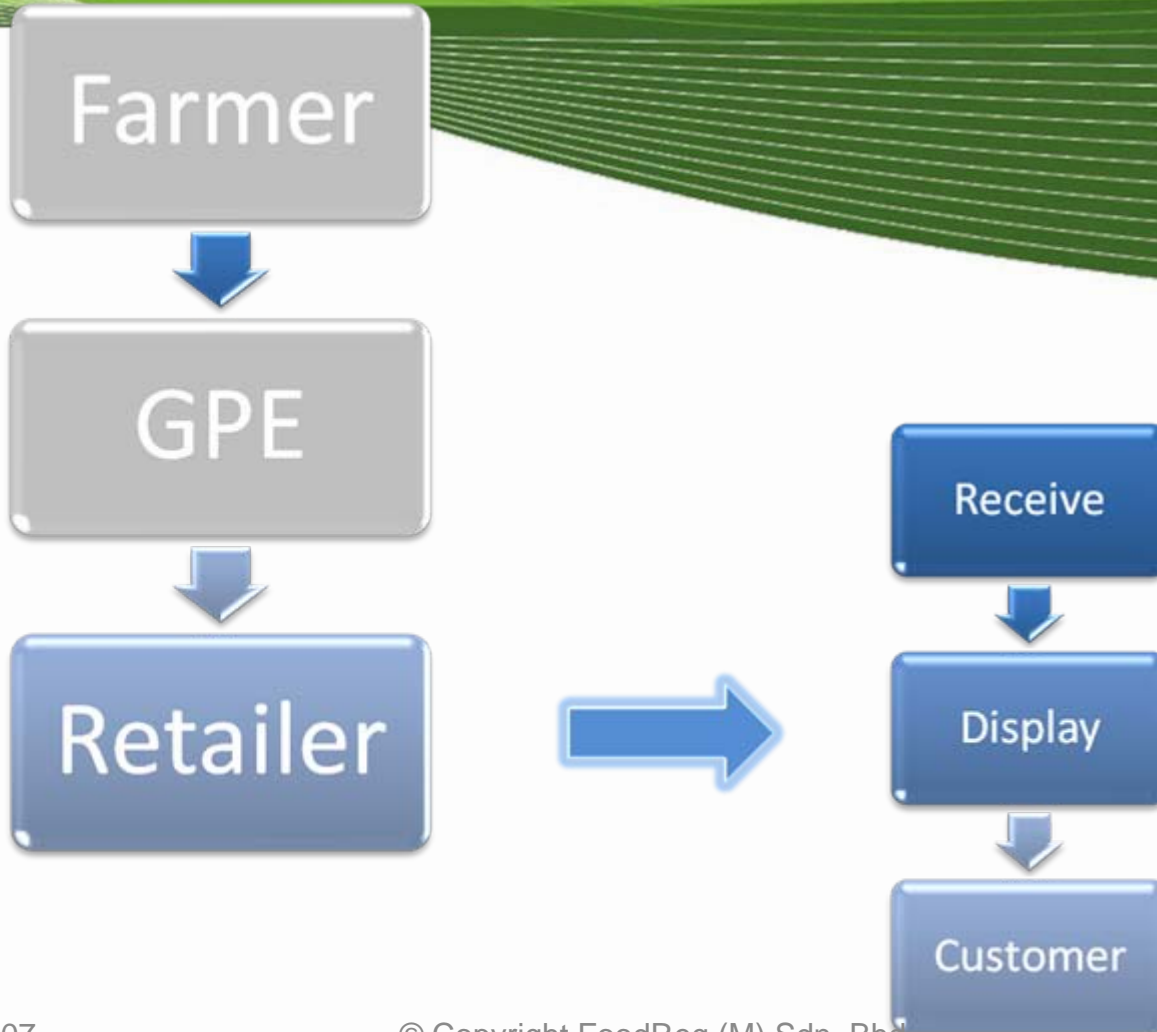
M-FIT Retailer Operations

System Deployment by end of July, 2007

Receive → Display → Consumer
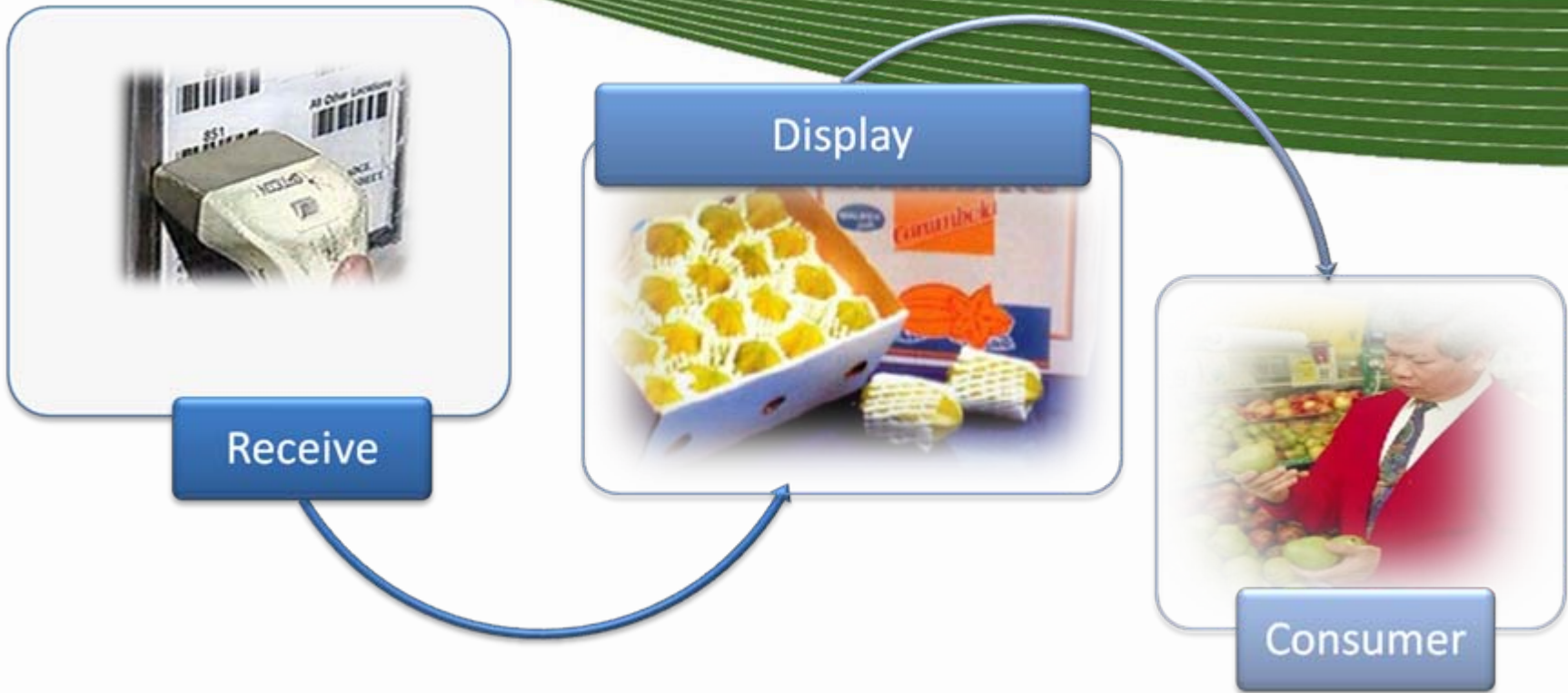
System Tracking Mechanism

Secured Access

General Data

Operation Data

Generate Reports

How Origin & Food Safety Info can be Tracked?

Scanning Identification Code

System administration

Report Management

Report Lists

Please enter RG Code Number

RG Code Number

RG6STRFRMD0000Y6   [Generate Report]   [Clear]

Display of Food Safety Report

Application of Pesticides Activities
Per Fruiting Season

Block No: **BLK1**   Supplier Delivery Id (DO): **RG6-TSTAR1-001D1A-6**
Start Of Season: 01 January 2007
End Of Season: 15 February 2007

Farm ID	Product	Pesticide Name	PHI Duration	Event Date	Safe By	Harvested Date	Status
TSTAR1	Star fruit	Racun Kumbang	11	05.01.2007	16.01.2007	17.01.2007	
TSTAR1	Star fruit	Racun semut	20	10.01.2007	30.01.2007	17.01.2007	⚠
TSTAR1	Star fruit	Racun semut	20	23.01.2007	12.02.2007	30.01.2007	⚠

⚠ **Warning: Unsafe. Produce harvested before PHI**
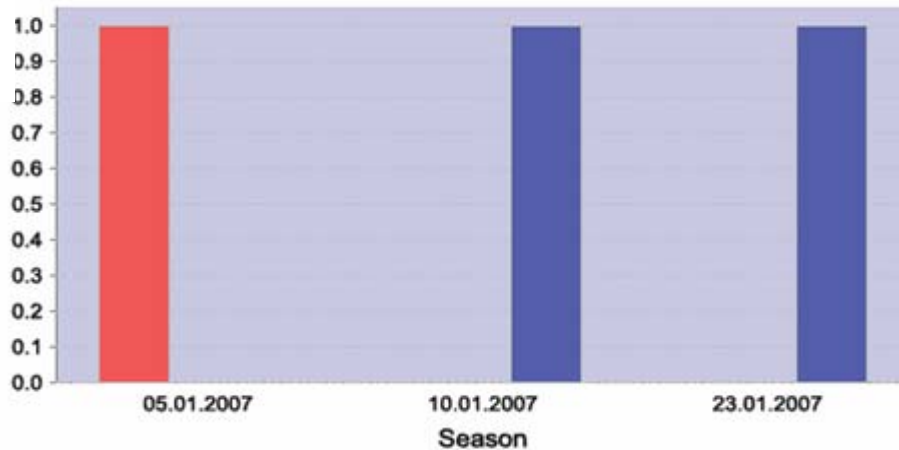
Chemical

Pesticide hazard might occur in the produce ! Do not proceed to the next point of supply chain!

Dosage

1.0			
0.9			
0.8			
0.7			
0.6			
0.5			
0.4			
0.3			
0.2			
0.1			
0.0	05.01.2007	10.01.2007	23.01.2007

Season

■ Racun Kumbang ■ Racun semut

Monitoring of Supply Chain

Search conditions

Reference: Tracepoint: **SF GPE Despatch**   Starting date: Ending date:

Execution results

Tracing backwards ◀ ◀ ◀ ◀ ◀ ◀

GPE Activities

- SF GPE Despatch (16-04-07 10:35:44)
- SF GPE Grading & Packing (15-04-07 18:55:11)
- SF GPE Receive (15-04-07 17:43:31)
- SF Despatch (15-04-07 15:50:22)
- SF Harvest (15-04-07 08:48:07)
- SF Spraying Pesticides (17-03-07 12:25:37)
- SF Receive (15-11-06 12:16:04)
- SF Fertilization (16-02-07 12:20:16)
- SF Receive (15-11-06 12:18:39)
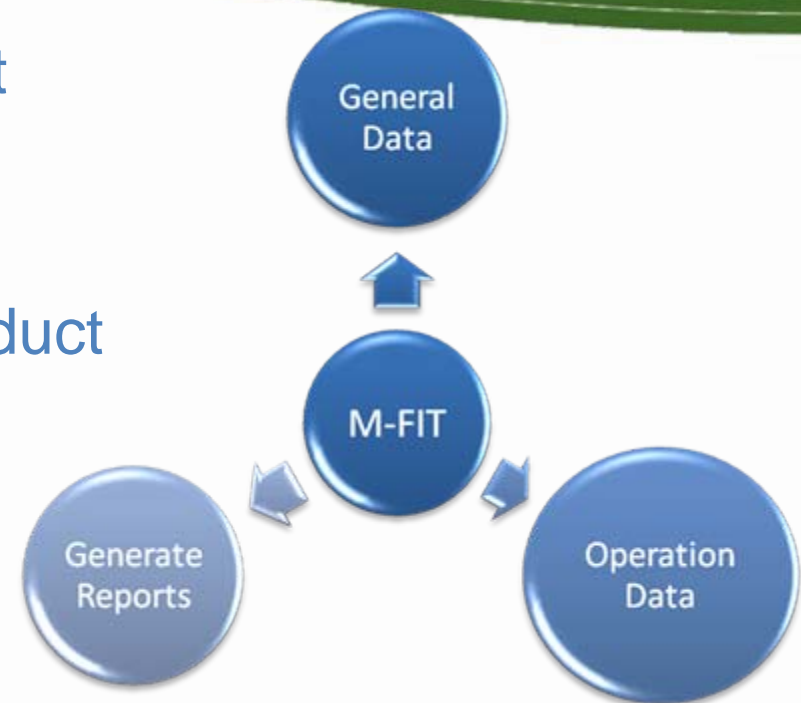- SF Cultural Practices (15-11-06 Reg-1(M))

Farm Activities

Easy to Trace and Track

❖ **Periodical reports generated**

    ❖ Better business management

    ❖ Improve operations & monitoring efficiency

    ❖ Alert or early warning or product recall

Conclusion

System Summary

Farmer
- ID Code for Harvest
  - Block, Cultural Practices, GPE ID, Despatch

GPE
- ID Code for Grading & Packing
  - ID Code from Harvest, Farm ID, Graded Batch, Retailer ID, Despatch

Retailer
- ID Code from GPE Grading
  - Track back to Farmer to Grader/Packer/Exporter (GPE)

System Summary

❖ What's next?

    ❖Evaluation of system

    ❖Further refinement of system

Project Summary

❖ System deployment for farms and GPE in progress

❖ System deployment for retailers will start end of July, 2007

❖ Full traceability from "farm to fork" is achievable

Project Summary

❖ What's next?

    ❖Test system with other produce types

    ❖Roll out nationwide for all commodity types

Acknowledgement

GOVERNMENT

Department of Agriculture

❖ Pn. Hjh. Norma Othman

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❖ En. Rohizad Ridzwan

ASSOCIATION

❖ Malaysian Fruit Exporters Association (MFEA)

INDUSTRY

❖ Seng Chew Hup Kee Sdn Bhd

❖ South Fruits (M) Sdn Bhd

❖ Up & Up Fruit Farm

Thank You

M-FIT Project Office

Suite S-08, 2nd Floor

2320 Century Square

63000 Cyberjaya

Selangor, Malaysia

Website: www.m-fit.info