

FOOD SAFETY | SUSTAINABILITY | QUALITY

FoodReg 



Smallholders and traceability



This and more info on food traceability: www.foodtraceability.eu



Farmers are micro-enterprises

- In Vietnam, out of 500+k fish business operators, 480k are micro
- In broiler farming in Europe on average >90% are holdings with less than 100 animals

	Total	1-99	100-999	1000-2999	3000-4999	5000-9999	10000-49999	50000-99999	>=100000
dk	360	190	10	0	0	0	60	70	20
de	9820	8340	450	60	20	30	590	240	90
gr	181770	176870	4130	30	20	180	450	50	20
it	43680	40770	1340	190	170	60	710	260	180
at	2740	2310	60	60	40	70	200	10	
pt	122820	121500	320	100	220	210	400	60	20
	1970	570	150	50	20	60	460	290	380
Totals	363160	350550	6460	490	490	610	2870	980	710
		97%	2%	0%	0%	0%	1%	0%	0%

Number of agricultural holdings with broilers, by size of the holding in 2005 (source EUROSTAT)

Thailand pomelo pickers



Vietnam shrimp trader

- ❑ Smallholders not part of any traceability effort
 - Tables not part of Vietnamese village culture
 - Shrimp farming a “passive” sources of income
- ❑ Uncontrolled mixing occurs at small middlemen
- ❑ Small middlemen use rudimentary (tax related) records and hand out receipts
- ❑ Electronic data capture not realistic



Olive oil farming in Palestine

- ❑ In the West Bank, olives make up 45% of all cultivated area
- ❑ Due to equal-share inheritance, farms are getting smaller
- ❑ Farms with more than 4 ha are considered big
- ❑ Olive farming is a secondary occupation

	<i>Palestine – low season (2004)</i>	<i>Palestine – record season (2006)</i>	<i>Spain (2004)</i>
Agricultural area for oil olives	89,826 ha	89,826 ha	2,009,390 ha
Olives for pressing/pressed	95,765 t	159,059 t	5,701,700 t
Olive yield	1.07 t/ha	1.77 t/ha	2.83 t/ha
Average rainfall	694 mm	694 mm	approx 600 mm
Olive oil	8,869 t	34,002 t	1,167,935 t
Oil yield	99 kg/ha	379 kg/ha	581 kg/ha

Dairy production in Malaysia



	<i>Number of breeders</i>	<i>Number of farms</i>	<i>%</i>
Smallholders	<30	519	89.6
Semi-commercial	30-50	32	5.5
Commercial	>50	28	4.8

- ❑ Most milk in Malaysia is imported
- ❑ Despite the relatively good price for raw milk, there are very few commercial farms in the country
- ❑ Animals are registered only when crossing provincial borders
- ❑ New regulation requires animals to be tagged





- Such a traceability system has to be designed with the following in mind
 - It needs to be as simple as possible and therefore limited in scope
 - It needs to be easily transportable into an electronic medium for monitoring purposes
 - It needs to be affordable and practical for all steps in the supply chain
 - It needs to be compliant with international regulations
- Pareto principle (80-20) rule: try to achieve 80% with 20% effort
- Limitation to product flow



- The purpose of the traceability is **mainly** to establish the product flow (e.g. for a product recall)
- Non-essential data, e.g. data on quality checks, samples and other data, is considered a *voluntary* addition to the product flow data
- It is of interest to record quantities of product
 - Enables mass balance and => control over COOL labelling.
 - However now a secondary goal and should not be enforced.
- The traceability system applies primarily to essential chain steps
 - Grow-out
 - Input providers (feed and medicines)
 - Middlemen, where present
 - Processors

- The proposed system consists of
 - A globally unique traceability code (T-code)
 - A pre-printed traceability label which is distributed to all FBOs, initially free of charge at least for smaller enterprises
 - A traceability (paper) form which relates inputs to outputs and which travels with the goods





- In order to provide traceability the following elements require identification:
 - Business locations
 - Trade units (products and their batches)
 - Logistic units (containers, pallets or “batches” of the same)
 - [Contracts]
- GS1 supplies products for these needs
- GS1 is one of the largest identity service providers in supply chain, but
 - Mainly in retail and distribution
 - Few members in primary production due to membership fees
- GS1 is only one ISO15459 registered supplier of globally unique IDs



RG8-VNBTAW2A-A1-2DG-0

Element	Base	Example	Elements in base	Possible combinations	Remarks
IAC	2 [A-Z,0-9]{0,3}	RG	36	1296	ISO15459 registered IA
Code type	1 [0-9]	8	10	10	
Country	2 [A-Z]{2}	VN	26	676	2 digit ISO code for country
Province	2 [A-Z]{2}	BT	26	676	
District	1 [A-Z,0-9]	A	36	36	
Business site	3 [A-Z,0-9]{3}	W2A	36	46656	
Location	2 [A-Z,0-9]{2}	A1	36	1296	00 if undetermined, 01 if single location
Serial	3 [A-Z,0-9]{3}	2DG	36	46656	Equivalent to over 120 years of daily operation per location
Check digit	1 [A-Z,0-9]	0	36	36	
Total length	17 Example	RG8-VNBTAW2A-A1-2DG-0			



- Globally unique thanks to using an 'RG' code

- Traceability features
 - Designates country in clear letters => basis for a COOL labelling
 - Designates the province in clear letters, e.g. BT = Ben Tre. This will help client to locate their supplier on the map.
 - Designates the district by a lookup code. The district is of less importance and less well known at the import end.
 - Designates the business site by a lookup code. The business site receives a short code which interested parties should be able to look up from an internet resource. In any case, without accessing any electronic system they can check if the source varies or not between shipments
 - A serial code for basic timeline; can help to establish a control of the FIFO system of the supplier
 - Basic anti-counterfeiting with serial code and check digit



The traceability label

Clear printed name of owner of label



Two detachable sub-labels

Code-128 barcode for automated registration

Clear print code for manual registration

QR code for mobile phones points to web

More information here



- The traceability label is designed so that it can be attached to physical goods (the big label), but its two “peel-off” sub-labels are used in combination with paper work.

- The barcodes will serve two purposes
 - Efficiency: Facilitate the electronic capture of traceability data
 - Marketing: Project an image of high professionalism of the Vietnamese fish sector

- Labels will be pre-printed and distributed upon registration
 - Initially free of charge (at least for smaller operations)



























The Traceability form



Link to more info

VIETNAM Food Traceability Form

Data entry:
Internet: trace.mard.gov
SMS: download from trace.mard.gov

  Despatch date: Out	 R8V9B7AWZAA1Z00	 R8V9B7AWZAA1Z00	 R8V9B7AWZAA1Z00	 R8V9B7AWZAA1Z00
	 R8V9B7AWZAA1Z00	 R8V9B7AWZAA1Z00	 R8V9B7AWZAA1Z00	 R8V9B7AWZAA1Z00
	 R8V9B7AWZAA1Z00	 R8V9B7AWZAA1Z00	 R8V9B7AWZAA1Z00	 R8V9B7AWZAA1Z00
	 R8V9B7AWZAA1Z00	 R8V9B7AWZAA1Z00	 R8V9B7AWZAA1Z00	 R8V9B7AWZAA1Z00
	 R8V9B7AWZAA1Z00	 R8V9B7AWZAA1Z00	 R8V9B7AWZAA1Z00	 R8V9B7AWZAA1Z00
	 R8V9B7AWZAA1Z00	 R8V9B7AWZAA1Z00	 R8V9B7AWZAA1Z00	 R8V9B7AWZAA1Z00

In

Date (optional)

Space to paste detach T-label

Two differently coloured areas for inputs and outputs

Properties of the traceability form



- Requires no writing at all!
 - Date is optional
- Maps outputs to inputs in a very intuitive way
- Supports a very simple way to handle mixing
- Is supposed to travel with the goods (as original or as copy)
- Is the minimal expression of traceability
- Other information should be recorded (=>TraceFish) if the enterprise can afford or understands it



- Grow-out
 - One form for each batch (pond and harvest cycle)
 - Fry can be recorded manually as input
 - Paste one label of farm input provider per feed delivery (at least one label from each farm input provider)
 - Upon harvest, paste one own label to the form
 - Send form with goods (and keep a copy if that's possible)

- Farm input provider
 - Give one label to farm for each delivery



- Primary Middlemen
 - Detach label from farm traceability form and paste onto own form
 - If segregation: no more action necessary
 - If mixing: paste one label from each farmer onto form
 - Upon despatch, paste own label on out side
 - If supplying to several clients, make copies!

- Secondary Middleman
 - Similar, using the second detachable label

- Send the forms with the goods (and keep a copy)

How to operate the traceability system

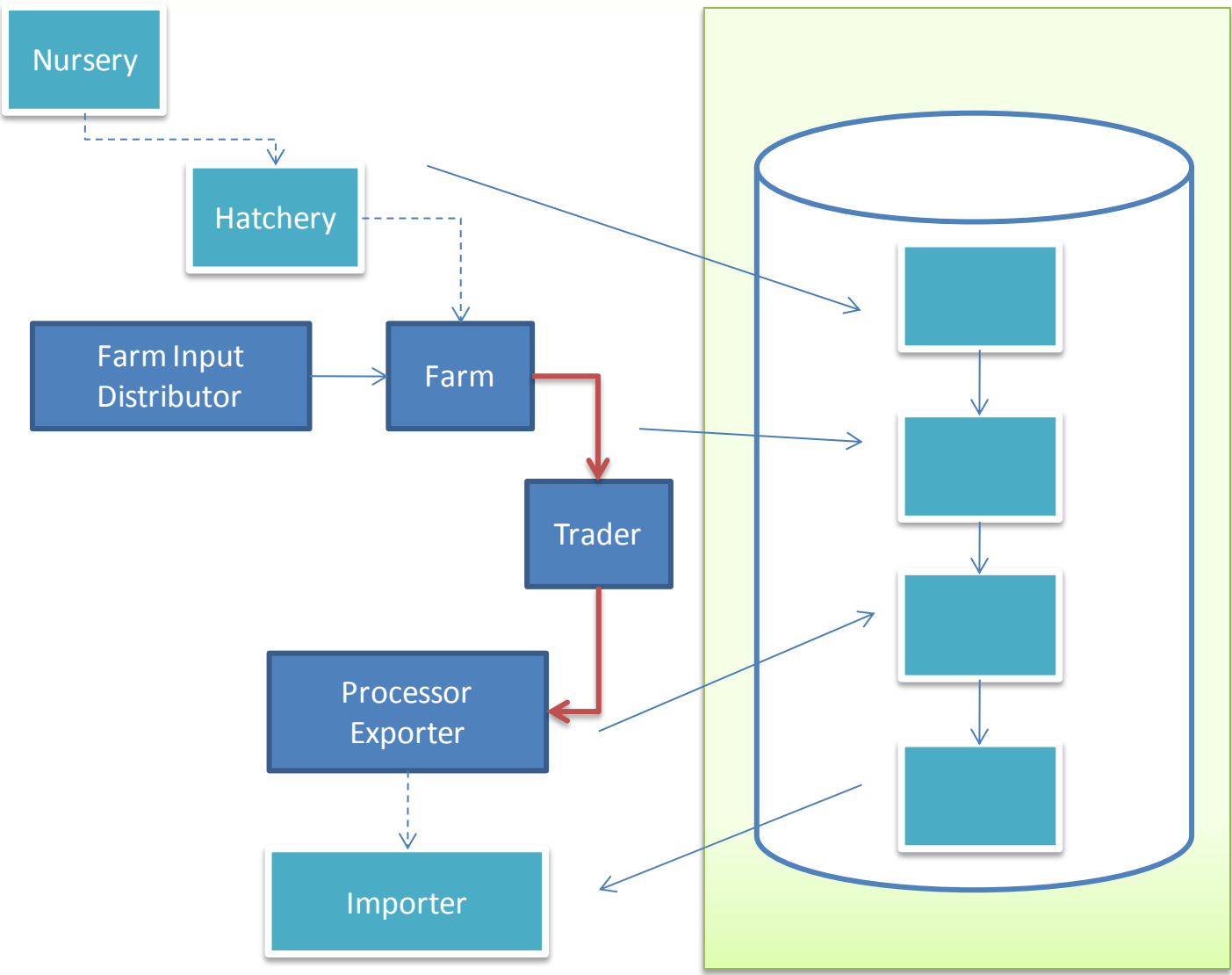


- Processors are the caretakers of the traceability information
- Processors can use the traceability form exactly in the same way as middlemen
- When mixing, apply a new label
- Gain a standardised way to identify batches even for mixed raw materials
- Information will be entered to electronic traceability monitoring system
 - With barcode reader for speedier data capture or manually
- Label has information linked to it => Importer can look up information



- This system only establishes the product flow
- All enterprises should keep in due course information according to the TraceFish standard (see our own recommendations which data are to be kept)
- Note that this system is product neutral!
 - Product type can be established in electronic monitoring system
 - Product type not essential to establish its flow
- However, as a first step this is very good
 - Product flow clear
 - Allows basic monitoring, especially when getting farm input providers on board

Electronic Monitoring System





red light: non-conformance
green light: conformance



Public sector



Private sector



GLOBALG.A.P.

BRITISH RETAIL CONSORTIUM



Certifications



- Purpose
 - Increase speed of recalls
 - Increase possibility of early disease detection
 - Answer requests from importing nations or even importers
 - Project a professional image

- This system should have the following users
 - Relevant government officers from the local and the central competent authorities
 - Importers
 - Consumers
 - Other stakeholders

Services of the traceability system



- Provide simple traceability information
- Provide map view of origin and supply chain
- Government officials can post health certificates (export)
- Importers can check with mobile phone (QR Code) upon reception
- They can choose to provide the label/information to their customers



- Processors are named “caretakers” of the traceability system
- Processors are the latest step when traceability information has to be entered into electronic system
- Barcodes reduce the workload of data entry
- Processors can “outsource” data entry to their supply chain
 - Middlemen and farmers gain a small premium
 - Proliferation of electronic data capture over time
- The electronic traceability system will accept data entry by
 - Computer with internet connection and a standard browser
 - Mobile phone through a GPRS/3G connection
 - Mobile phone through free application (via SMS)



- This system is being considered in the seafood sector in SE Asia
- It serves as a first step to include smallholders in traceability efforts
- The system consists of
 - Globally unique serialised origin codes (T-code)
 - Pre-printed T-labels with barcoded information
 - Extremely simple T-form mapping inputs to outputs
- The system only establishes product flow, but is extensible



Thank you for your attention!

FoodReg®

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