Pesticides, the residues and their alternative impacts to the Import Regulation

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The issues of concern

- Harmonization of global pesticide regulation/registration
- The generic pesticides
- Pest risk analysis in each commodities related to the use of pesticides
- The MRL setting
- The commodities

Pesticide formulations and residues

- Method of analysis of pesticide formulations
- Method of analysis of pesticide residues

Food Safety in Thailand

- **Pesticide residues****
- Drug residues such as nitrofuran and metabolized, chloramphenicol and etc.
- Pathogens (*E. coli* & *Salmonella* spp.)
- Mycotoxins (Aflatoxin)
- Heavy metals
- Food additives/coloring

Pesticide residues regulation

- Pesticide residue regulation by Food Act B.E. 2522 (1979) revised MOPH's Notification on "Food Containing Pesticide Residues", endorsed on April 2011.
- Pesticide residue voluntary basis by TAS (Thai Agricultural Standard on 9002-2008) 2008

Pesticide residues, Thai export commodities and some relevant problems

- **EU Pesticide reviewed (1991) and Food Safety Regulation 2000 and 2002 and more…**
- The default value (provisional value) of pesticide residues at LOQ mg/kg (0.01 mg/kg) (Japan and EU)
- **Method of Analysis, Classical vs modified QuEChERS method (**Quick Easy Cheap Effective Rugged Safe)
- Multi-screening method vs Single method validation
- No. of screening list of pesticide test in each country

Global pesticide revolution..

- Generic pesticide Management
- Less new pesticides registration/price
- Alternatives of pesticide use
- GEP vs GLP for field trials (Efficacy and Residue trials)
- Registration systems
- Pesticide residues/export commodities

Pesticide regulation in Thailand

- Pesticide Act B.E. 2510 (1967)
- Hazardous Substances Act B.E. 2535 (1992) (HSA)
- Hazardous Substances Act B.E. 2535 amended No. 3 B.E. 2551 (2008)

Hazardous Substances Act B.E. 2535 amended No. 3 B.E. 2551 (2008) and related Notifications (Ministry/Department)

- Re-registration processes are needed
- Toxicity study under OECD-GLP endorsement of six packs [(3)-Acute (oral-dermal-inhalation) toxicology, dermal/eyes (2) irritation and (1) dermal sensitization)] of both tech. materials and formulations
- 5 years of validity in efficacy and residue trials
- 6 year of registration period
- 3 years of transferring period from HSA amended No. 2 to no. 3 within Aug 23, 2008-Aug. 22, 2011

The results obtained….

- 20,282 trade names have to be transferred to the new HSA within 3 years (August 22, 2011) where;
- Endorsement of OECD-GLP for all toxicity tests of both technical materials and formulations,
- US-GLP vs OECD-GLP,
- Under recent DOA's Notification one pesticide formulation permit only 3 trade names (the other two need to pass the registration but Toxicity and Efficacy data are not required.

The results obtained….

- After August 22, 2011 the remaining products can be marketed for two years
- All reregistration are stopped
- Registrants have to followed exactly the HS ACT
- Alternative pesticide substitution such as biopesticides/botanicals

Pesticide residue in food export

EU guidance

Mean recovery and precision criteria for plant matrices and animal matrices

Concentration level	Range of mean recovery (%)	Precision, RSD (%)
> 1 µg/kg ≤ 0.01 mg/kg	60 - 120	30
> 0.01 mg/kg ≤ 0.1 mg/kg	70 - 120	20
> 0.1 mg/kg ≤ 1.0 mg/kg	70 - 110	15
> 1 mg/kg	70 - 110	10

The required level to analyzed commodities at LOQ level and their impacts

- AT Asean reference level for analysis of MRL at LOQ level;

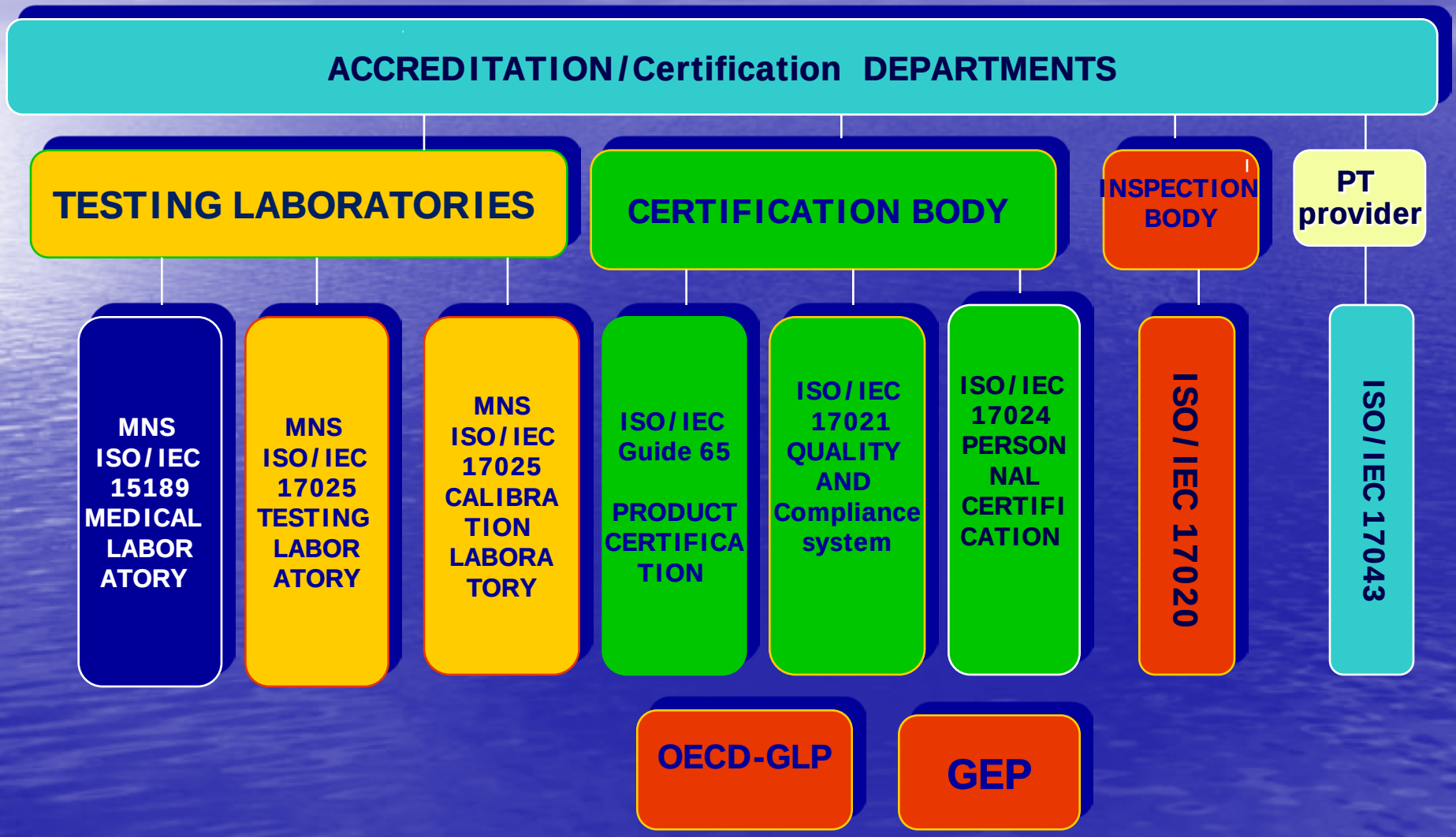
  For ex. at 0.01 mg/kg the laboratory capability should be at 0.006 mg/kg

- Instruments used in residue analysis are more critical

Instruments Involved

- No choice instruments for service laboratory
  - LC-MS/MS
  - GC-MS/MS
- Instrument for Reference laboratory
  - ID (HR-GC/LC-MS)

Other relevant ACTIVITIES



Quality Infrastructure for Agricultural Products

Farm to Fork System

IAF, ILAC - MRA

APLAC, PAC

Regulatory Body

Accreditation Body

Sanitary Surveillance

Services

ISO/IEC Guide 65 | ISO/IEC 17020 | ISO/IEC 17025 | ISO/IEC 17043 | ISO/IEC Guide 34

Farming → Processing → Packaging → Transport

Certification Body

Inspection Body

Testing Lab

Calibration Lab

PT Provider

RM Provider

traceability

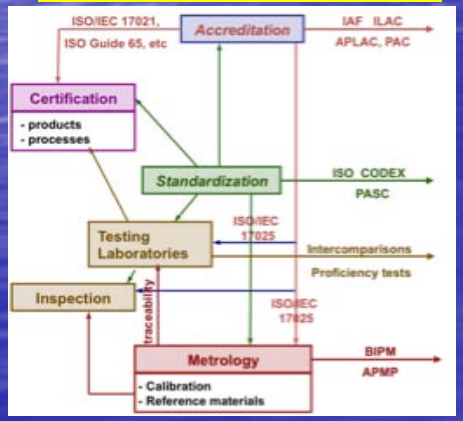
NQI Support

National Metrology Institute - NMI

- *Technical Regulations*
- *Directives*
- *Standards*
- *Laws*

APMP

CIPM - MRA



Conclusions

- As the developing country to deal with the food security to support higher populations as well as the global climate change there may have some impacts;
- How to protect food lost without using of pesticides/GMOs??
- How to increase food production in farming systems with food safety assurance
- Food safety and the quality systems
- How to differentiate foods and fuel production
- Climate change and pests

Conclusions (Cont.)

- Reference Laboratory and Service Laboratories
- Cost of relevant instruments/cost of analysis

Thank you for your attention

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