2.19 THAILAND

I. GENERAL INFORMATION

Last updated: June 2009

Overall Executive Summary

The Plant Quarantine Act B.E. 2507 (1952) amended by the Plant Quarantine Act (No. 2) B.E. 2542 (1999) and Plant Quarantine Act (No. 3) B.E. 2551 (2008) have been enforced by the Department of Agriculture (DOA). The Plant Quarantine Act (No. 3) provides specifications and criteria for notification of plants, plant pests and carriers as prohibited articles. DOA has recently given a number of notifications to strengthen the quarantine practices for both export plants and plant products and import prohibited articles.

In 2008, the outbreak of an unknown species of mealybug occurred in some cassava plantations. The new pest caused more severe damage to cassava than striped mealybug, *Ferrisia vergata*.

DOA has recently conducted a detection survey of mango seed weevil, *Sternochetus mangiferae*. The purpose is to confirm that Thailand is free from this weevil and to expand the export market

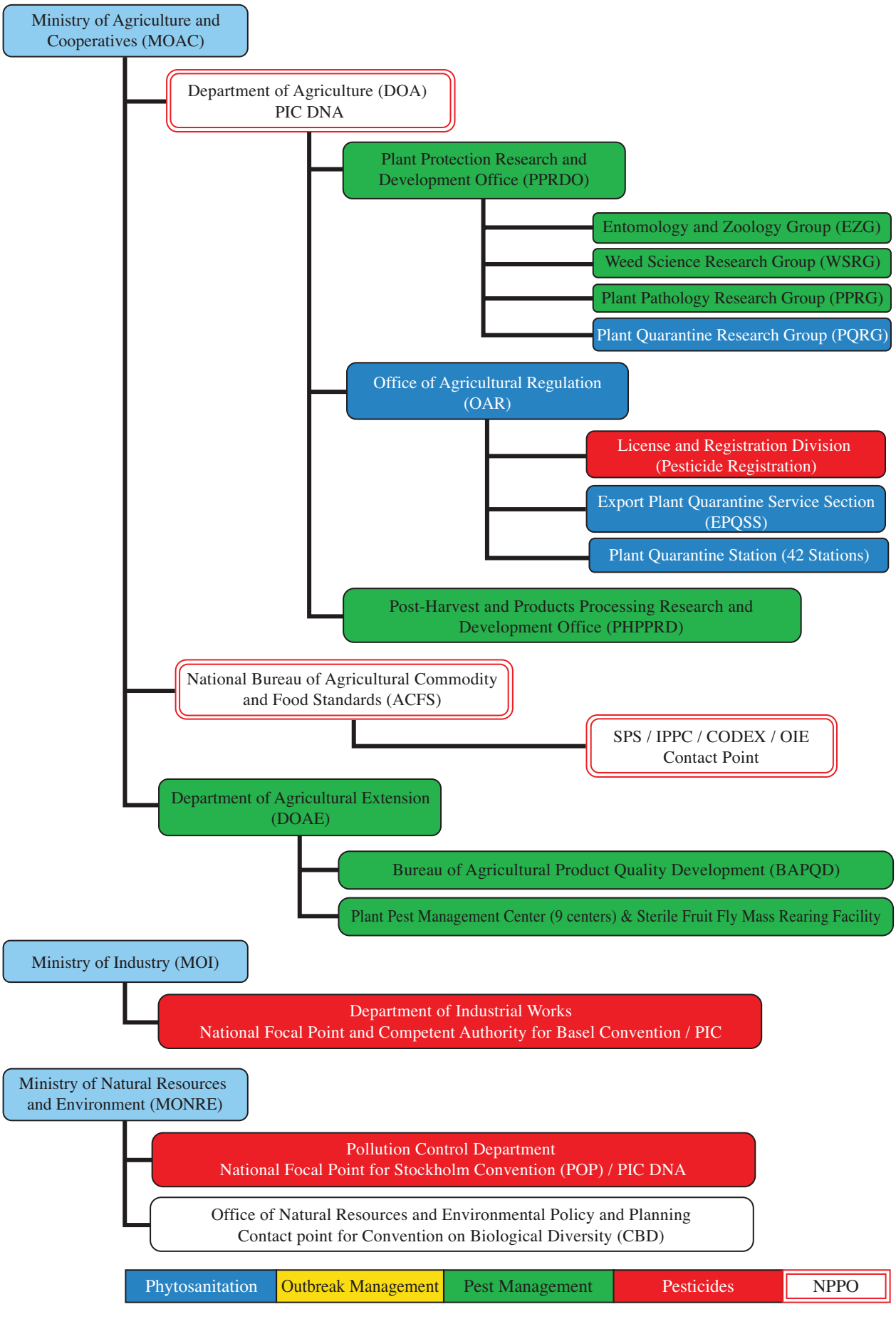
During 2007-2008, the Department of Agricultural Extension (DOAE) has not changed the national policy on IPM Programme. However, a number of IPM training programmes and farmer field schools had to be curtailed, due to the budget constraint. Farmers' education placed emphasis on changing the attitude of the farmers who applied highly toxic pesticides and on helping them understand the good principles of Good Agricultural Practices (GAPs). The farmers were also encouraged to use bio-agents to replace or alternate with chemical pesticides.

Since the end of 2007, under the project entitled "Using Integrated Pest Management for Decreasing Risk of Plant Pest Infestation", DOAE has put efforts to develop farmers into "Pests Management Professionals in IPM", to reduce damage to farmers crops, to encourage less investment, and to enhance community participation.

Area-wide IPM of fruit fly control programme using the Sterile Insect Technique (SIT) has been carried out over a large area. However, its success largely depends on adequate and timely financial support from the government.

The Hazardous Substances Act B.E. 2535 (1992) was amended in 2008 and is enforced. DOA gave a notification on registration and licensing, which requires pesticide companies or laboratories to adopt the Good Laboratory Practices (GLPs).

Plant Protection Organization Chart



Important Contact Addresses

Responsible Ministry/Ministries

Ministry of Agriculture and Cooperatives (MOAC)
Permanent Secretary
Ministry of Agriculture and Cooperatives
Rajadamnern Nok Rd., Bangkok 10200
Tel: 662-281-5955 # 206, 662-281-0858 # 259
Fax: 662-281-3513
Website: www.moac.go.th

Responsible Department

Department of Agriculture (DOA)
Director General,
Department of Agriculture
50 Phaholyothin Rd., Chatuchak, Bangkok 10900
Tel: 662-579-9636
Fax: 662-940-5528
Website: www.doa.go.th

Address for nominations

National Plant Protection Organisation (NPPO) of Thailand

Department of Agriculture (DOA)
Ministry of Agriculture and Cooperatives
Director General,
Department of Agriculture
50 Phaholyothin Rd., Chatuchak, Bangkok 10900
Tel: 662-579-9636
Fax: 662-940-5528
Website: www.doa.go.th

Operational Offices of Plant Protection in DOA:

Plant Quarantine

Director, Office of Agricultural Regulation (OAR)
Department of Agriculture
Ministry of Agriculture and Cooperatives
50 Phaholyothin Rd., Chatuchak, Bangkok 10900
Tel: 662-579-8576
Fax: 662-579-5084
Website: www.doa.go.th

Technical Support Group of plant quarantine

Plant Quarantine Research Group (PQRG)
Plant Protection Research and Development Office (PPRDO)
Department of Agriculture
50 Phaholyothin Rd., Chatuchak, Bangkok 10900
Tel: 662-579-8516
Fax: 662-561-0744
Website: www.doa.go.th

Contact Point (for IPPC/APPPC)

Director, Office of Commodity and System Standards
National Bureau of Agricultural Commodity and Food Standards (ACFS)
Ministry of Agriculture and Cooperatives
50 Phaholyothin Rd., Chatuchak, Bangkok 10900
Tel: 662-561-2277
Fax: 662-561-3373, 662-561-3357
E-mail: ippc@acfs.go.th
Website: www.acfs.go.th

Surveillance, Pest Outbreaks and Invasive Species Management

1. Director, Plant Protection Research and Development Office (PPRDO)
   Department of Agriculture
   Ministry of Agriculture and Cooperatives
   50 Phaholyothin Rd., Chatuchak, Bangkok 10900
   Tel: 662-579-5583 # 249
   Fax: 662-940-5396
   Website: www.doa.go.th

2. Director, Post-Harvest and Products Processing Research and Development Office (PHPPRD)
   Department of Agriculture
   Ministry of Agriculture and Cooperatives
   50 Phaholyothin Rd., Chatuchak, Bangkok 10900
   Tel: 662-940-6362
   Fax: 662-940-6364
   Website: www.doa.go.th

3. Director, Bureau of Agricultural Product Quality Development (BAPQD)
   Department of Agricultural Extension
   2143/1 Phaholyothin Rd., Chatuchak, Bangkok 10900
   Tel: 662-940-6190
   Fax: 662- 940-6190
   Website: www.doae.go.th

Pest Management

1. Director, Plant Protection Research and Development Office (PPRDO)
   Department of Agriculture
   Ministry of Agriculture and Cooperatives
   50 Phaholyothin Rd., Chatuchak, Bangkok 10900
   Tel: 662-579-5583 # 249
   Fax: 662-940-5396
   Website: www.doa.go.th

2. Director, Post-Harvest and Products Processing Research and Development Office (PHPPRD)
   Department of Agriculture
   Ministry of Agriculture and Cooperatives
   50 Phaholyothin Rd., Chatuchak, Bangkok 10900
   Tel: 662-940-6362
   Fax: 662-940-6364
   Website: www.doa.go.th

3. Director, Bureau of Agricultural Product Quality Development (BAPQD)
   Department of Agricultural Extension
   2143/1 Phaholyothin Rd., Chatuchak, Bangkok 10900
   Tel: 662-940-6190
   Fax: 662 940-6190
   Website: www.doae.go.th

Pesticide Management

License and Registration Division
Director, Office of Agricultural Regulation (OAR)
Department of Agriculture
Ministry of Agriculture and Cooperatives
50 Phaholyothin Rd., Chatuchak, Bangkok 10900
Tel: 662-579-8576
Fax: 662-579-5084
Website: www.doa.go.th

Official International Contact Points

WTO SPS Contact Point

National Bureau of Agricultural Commodity and Food Standards (ACFS)
Ministry of Agriculture and Cooperatives
50 Phaholyothin Rd., Chatuchak, Bangkok 10900
Tel: 662-561-4034
Fax: 662-561-4204
E-mail/Internet: sps@acfs.go.th
Website: www.acfs.go.th

Rotterdam Convention (PIC) DNA Pesticides (P)

Director, Office of Agricultural Regulation (OAR)
Department of Agriculture
Ministry of Agriculture and Cooperatives
50 Phaholyothin Rd., Chatuchak, Bangkok 10900
Tel: 662-579-8576
Fax: 662-579-5084
Website: www.doa.go.th

Stockholm Convention (POP) National Focal Point (P)

Pollution Control Department
Ministry of Natural Resources and Environment
92 Soi Phaholyothin 7 Sam Sen Nai, Phayathai, Bangkok 10400
Tel: 662-298-2457 / 298-2766
Fax: 662-298-2425
Website: www.pcd.go.th

Basel Convention Competent Authority (CA) and Focal Point (FP)

1. Department of Industrial Works
   Ministry of Industry
   75/6 Rama VI Road, Ratchatewi
   Bangkok 10400
   Tel: 662-202-4228 or 662-245-7874
   Fax: 662-202-4015
   Website: www.diw.go.th

2. Pollution Control Department
   Ministry of Natural Resources and Environment
   92 Soi Phaholyothin 7, Phaholyothin Rd.
   Phayathai District
   Bangkok 10400
   Tel: 662-298-2238, 2427 or 2447
   Fax: 662-298-2425
   Website: www.pcd.go.th

The Montreal Protocol

1. Director, Office of Agricultural Regulation (OAR)
   Department of Agriculture
   Ministry of Agriculture and Cooperatives
   50 Phaholyothin Rd., Chatuchak, Bangkok 10900
   Tel: 662-579-8576
   Fax: 662-579-5084
   Website: www.doa.go.th

2. Department of Industrial Works
Ministry of Industry
75/6 Rama VI Road, Ratchatewi
Bangkok 10400
Tel: 662-202-4228 or 245-7874
Fax: 662-202-4015
E-mail: basel@narai.diw.go.th

Selected Country Statistics (2007)

Agricultural Population	29.7 million	Agricultural Land	20.85 million ha
GDP $121 703 million	Agric. GDP: 11.40%	GNI per capita: $3 400	Undernourishment: 20%
Main crops grown: rice, para rubber tree, orchids, corn			

GDP = Gross Domestic Product; GNI = Gross National Income; Hunger = Population below minimum energy requirement

II. PLANT QUARANTINE

Last updated: June 2009

Executive Summary

The Plant Quarantine Act B.E. 2507 (1952) amended by the Plant Quarantine Act (No. 2) B.E. 2542 (1999) and Plant Quarantine Act (No .3) B.E. 2551 (2008) have been enforced by the Department of Agriculture (DOA), the Ministry of Agriculture and Cooperatives (MOAC).

The Plant Quarantine Act (No. 3) B.E. 2551 (2008) which was published in the Royal Gazette in May 2008 contains 26 Sections which provide specifications and criteria for notification of plants, plant pests and carriers as prohibited articles, adding power to control the exportation of specific controlled plants, as well as enhancing power of plant quarantine officers toward an effective prevention of exotic plant pests and diseases.

During 2007-2008, the Department of Agriculture (DOA) issued five of Notifications of the Ministry of Agriculture and Cooperatives and eight of its own Notifications to strengthen the quarantine practices for both export plants and plant products and import prohibited articles.

List of Key Legislation/Regulations/Rules

1. Plant Quarantine Act. B.E. 2507 (1964) amended by Plant Quarantine Act (No. 2) B.E. 2542 (1999) Plant Quarantine Act. (No. 3) B.E. 2551 (2008)
2. Notification of Ministry of Agriculture and Cooperatives on
   - 2.1 Specification of plants and carriers from certain sources as prohibited articles, of exceptions and conditions under the Plant Quarantine Act B.E. 2507 (1964) (No. 5) B.E. 2550 (2007)
   - 2.2 Specification of plants from certain sources as restricted articles, of exceptions and conditions under the Plant Quarantine Act B.E. 2507 (1964) B.E. 2550 (2007)
   - 2.3 Specification of plant pests as prohibited articles under the Plant Quarantine Act B.E. 2507 (1964) (No. 6) B.E. 2550 (2007)
   - 2.4 Specification of plant pests as prohibited articles under the Plant Quarantine Act B.E. 2507 (1964) (No. 7) B.E. 2550 (2007)
   - 2.5 Specification of plant from certain sources as prohibited articles, of exceptions and conditions under the Plant Quarantine Act B.E. 2507 (1964) (No. 8) B.E. 2550 (2007)
3. Notification of Department of Agriculture on
   - 3.1 Specifications, methods and conditions of pest risk analysis for the importation of prohibited articles
   - 3.2 Request for issuance of phytosanitary certificate for export fresh fruit and vegetable to European Union B.E. 2550 (2007)
   - 3.3 Criteria, procedures and conditions for the request for and issuance of phytosanitary certificate for export fresh fruits and vegetables to European Union B.E. 2550 (2007)
   - 3.4 Criteria, procedures and conditions for the request for and issuance of phytosanitary certificate for export fresh fruits and vegetables to Norway B.E. 2551 (2008)
   - 3.5 Specifications, methods and conditions for the importation of bat feces B.E. 2551 (2008)
   - 3.6 Criteria, procedures and conditions for the importation or bringing in transit of prohibited, restricted and unprohibited articles B.E. 2551 (2008)
   - 3.7 Criteria procedure and condition for the request for and issuance of phytosanitary certificate and phytosanitary certificate for re-export B.E. 2551 (2008)

3.8 Criteria, procedures and conditions for the importation of prohibited articles after the completion of pest risk analysis B.E. 2551 (2008)

Web source for further information: http://www.doa.go.th

(regarding plant quarantine)	Yes	No
Does phytosanitary legislation cover domestic quarantine?	x	
Does phytosanitary legislation cover import quarantine?	x	
Does phytosanitary legislation cover export quarantine?	x	
Does phytosanitary legislation cover living modified organisms?	x	
Is plant quarantine a separate organization from animal quarantine?	x	
Other policy initiatives (under review/progress)		
Web source for further information: http://www.doa.go.th, http://www.acfs.go.th		

Organization of Plant Quarantine Functions	Responsible Organizational Unit (Ministry/Department/Unit)
Pest Risk Assessment	MOAC/DOA/PPRDO/PQRG
National standards development	MOAC/DOA/OAR, PPRDO MOAC/ACFS
International notifications	MOAC/DOA/OAR, PPRDO/PQRG MOAC/ACFS
Import permits	MOAC/DOA/OAR
Import inspections	MOAC/DOA/OAR/PQ Stations MOAC/DOA/PPRDO/PQRG
Emergency action	MOAC/DOA/OAR/PPRDO/PQ Stations
Phytosanitary certificates	MOAC/DOA/OAR/Export PQ Service, PQ Stations MOAC/DOA/PPRDO/PQRG
Treatment of commodities	MOAC/DOA/OAR/Export PQ Service, PQ Stations MOAC/DOA/PPRDO/PQRG

Infrastructure	Year: 2009
Number of plant quarantine officers authorized to inspect/certify	90
Total qualified personnel for plant pest risk assessment	7
Number of quarantine offices	
entry points (sea/air/land/mail = total)	42
post-entry plant quarantine containment facilities	5
other offices	–
Number of quarantine service diagnosis laboratories	9
In-country recognized pest diagnostics capabilities (incl. universities, etc.)	
Number of laboratories for insect/mite (arthropod) samples	7
Number of laboratories for bacteria samples	6
Number of laboratories for virus samples	6
Number of laboratories for fungus samples	7
Number of laboratories for mycoplasma samples	3
Number of laboratories for nematode samples	6
Number of laboratories for plant/weed samples	7
Number of laboratories for other pests (snail, slug, rodents, etc.)	2

Pest Free Areas According to ISPM 10	Responsible Organizational Unit (Ministry/Department/Unit)
Overall management	MOAC/DOA/PPRDO
– surveillance	MOAC/DOA/PPRDO
– management	MOAC/DOA/PPRDO
– certification	MOAC/DOA/PPRDO

List of target pest species and crops ISPM 4	Number of sites in 2009
	–
List of target pest species and crops ISPM 10	**Number of sites in 2009**
Xanthomonas axonopodis pv. *citri*, pummelo	1

Key Situation Indicators

International Trade		Year: 2009
Main Import Plant Commodities	Main countries/areas of origin	Quantity (tons)
Soybean	Brazil, USA, Argentina	1 723 273
Maize	Laos, Cambodia	424 963
Wheat	USA, Australia, Canada	N/A
Main Export Plant Commodities	Main destination countries	Quantity (tons)
Rice	Iran, Iraq, USA	12 988 996
Cassava	People Republic of China, Spain	3 098 313
Maize	Indonesia	339 504

Cooperation Projects			
Title (Purpose/Target)	Donor	Amount	Years (start-end)
Cooperation for the Improvement of Phytosanitary Capacity in Asian Countries through capacity building (GCP/RAS/226/JPN) "The FAO Regional Training Workshop on Pest Risk Analysis"	FAO		2008-2009
Plant Biosecurity: Technological research and training for improved pest diagnostics in Thailand and Australia	Australia		2008-2010
Title of government follow-up programmes		Amount	Years (start-end)
–			

Key Operation Indicators

Institutional Functions	Year: 2009
Number of import permits issued	158 (2008)
Number of import inspections carried out	43 692
Number of emergency phytosanitary treatments taken on imports	6
Number notifications of non-compliance	53
Number of conventional phytosanitary certificates issued	255 153
Number of electronic phytosanitary certificates issued	–

Number of quarantine pests intercepted		Year:
Top three commodity	Top three pest/commodity	# of interceptions

Lists of Regulated Pests	Year of last update	Insects	Pathogens	Plants
Number of quarantine pests	2009	128	193	39
Number of regulated non-quarantine pests	–	–	–	–
Number of regulated import articles	2009	Prohibited articles: 1. Fresh fruits of plants in 23 species, 25 genus and 2 families 2. Any part of plants in 8 species, 11 genus and 1 families 3. Soil, organic fertilizer, agricultural micro-organisms, animal pests of plant, earthworms, insects, mites, nematodes, snails, slugs, weeds, parasites and predators. Restricted articles: 1. Dry tea leave, fresh coffee beans, cotton lint, white rice, broken rice, parboil rice Any part of plants in 20 species, 18 genus and 1 family		
Web source for further information: www.doa.go.th				

Pest Risk Analysis	Insects	Pathogens	Plants
No. of PRA completed and documented (according to ISPM)	–	–	2
PRA in process for tomato seed, onion, apple, shallot, corn seed, grape and garlic Web source for further information: http://www.doa.go.th			

Progress and Constraints

Main Progress in Recent Years (legislation, policies, infrastructure, investments, training, etc.)

1. Irradiation as a phytosanitary treatment training (22-27 January 2006)
2. SPS awareness and Plant diseases specimen preservation, curation and data management (9-12 April 2006)
3. Operation of radiation machine, dose mapping in irradiation treatment facility (4-8 September 2006)
4. Workshop on Plant Disease specimen preservation, curation and data management (19 January – 2 February 2007)
5. Workshop on diagnostics of key plant pathogenic fungi (29 January – 2 February 2007)
6. Detection method of potato mop top virus in potato tuber (20-25 October 2007)
7. Commercial irradiation treatment facility for treat fresh fruits to the United States. (2007)
8. Risk mitigation workshop for plant quarantine (26-30 May 2008)
9. Workshop on SPS awareness (19 January – 2 February 2007, 18-25 August 2008)
10. Workshop on diagnostics of key arthropod pest (21-25 August 2008)
11. Setting two Thai Agricultural Standards entitled Phytosanitary measure: Diagnostic protocols for regulated pests and Diagnostic protocols for *Pantoea stewartii* subsp. stewartii bacterial wilt of maize.

Main Constraints (personnel, infrastructure, administrative, operational, training, etc.)

Skilled personnel, SPS capacity building, PQ. Treatment facilities, communication network (international and domestic), diagnosis facilities, and administration.

Implementation of ISPM	Relevance			Implementation				Planned/Actual Year of full implementation
International Measures	low	medium	high	none	partial	most	full	
ISPM 01 Principles of plant quarantine as related to international trade			x			x		
ISPM 02 Guidelines for pest risk analysis			x	x				
ISPM 03 Code of conduct for the import and release of exotic biological control agents			x				x	
ISPM 04 Requirements for the establishment of pest free areas	x			x				
ISPM 05 Glossary of phytosanitary terms			x				x	
ISPM 06 Guidelines for surveillance			x		x			
ISPM 07 Export certification system			x				x	
ISPM 08 Determination of pest status in an area		x			x			
ISPM 09 Guidelines for pest eradication programmes		x			x			
ISPM 10 Requirements for the establishment of pest free places of production and pest free production sites			x				x	
ISPM 11 Pest risk analysis for quarantine pests			x				x	
ISPM 12 Guidelines for phytosanitary certificates			x				x	
ISPM 13 Guidelines for the notification of noncompliance and emergency action			x				x	
ISPM 14 The use of integrated measures in a systems approach for pest risk management	x			x				
ISPM 15 Guidelines for regulating wood packaging material in international trade			x				x	
ISPM 16 Regulated non-quarantine pests: concept and application	x			x				
ISPM 17 Pest reporting		x				x		
ISPM 18 Guidelines for the use of irradiation as a phytosanitary measure			x				x	
ISPM 19 Guidelines on lists of regulated pests			x				x	
ISPM 20 Guidelines for a phytosanitary import regulatory system			x				x	
ISPM 21 Pest risk analysis for regulated non-quarantine pests	x			x				
ISPM 22 Requirements for the establishment of areas of low pest prevalence	x			x				
ISPM 23 Guidelines for inspection			x				x	
ISPM 24 Guidelines for the determination and recognition of equivalence of phytosanitary measures	x			x				
ISPM 25 Consignments in transit		x		x				
ISPM 26 Establishment of pest free areas for fruit flies (Tephritidae)	x			x				
ISPM 27 Diagnostic protocols for regulated pests		x			x			
ISPM 28 Phytosanitary treatments for regulated pests		x				x		
ISPM 29 Recognition of pest free areas and areas of low pest prevalence	x			x				
ISPM 30 Establishment of areas of low pest prevalence for fruit flies (Tephritidae)		x			x			
ISPM 31 Methodologies for sampling of consignments	x			x				
ISPM 32 Categorization of commodities according to their pest risk	x			x				
Comments/Constraints – **Translation ISPM into Thai version**								

III. SURVEILLANCE, PEST OUTBREAKS AND INVASIVE SPECIES MANAGEMENT

Last updated: June 2009

Executive Summary

A new pest outbreak was detected in some cassava plantations in early 2008. The unknown species of mealybug caused more severe damage to cassava than striped mealybug, *Ferrisia vergata*. The new pest was collected for taxonomic identification.

The Department of Agriculture (DOA) conducts the detection survey of mango seed weevil, *Sternochetus mangiferae* in order to provide information supporting that Thailand is free from this weevil. This enables the country to expand the export market for Thai mango.

List of Key Legislation/Regulations/Rules for surveillance, pest reporting and emergency

- Plant Quarantine Act. B.E. 2507 (1964) Amended by Plant Quarantine Act (2nd edition) B.E. 2542 (1999) and Plant Quarantine Act (3rd edition) B.E. 2551 (2008)

Web source for further information: www.doa.go.th

(regarding invasive/migratory species management)	Yes	No
National strategy to control serious field pest outbreaks?	x	
National strategy to control migratory or periodically occurring pests?	x	
National strategy to eradicate serious newly invaded exotic pests?	x	
Other policies: (e.g. subsidies, etc.) Alien invasive species, Ministry of Natural Resources and Environment		
Web source for further information: www.pcd.go.th		

Organization of Outbreak Management Functions	Responsible Organizational Unit (Ministry/Department/Unit)
Field/Storage Pest Outbreaks	(e.g. BPH, boll worm, etc.)
Response strategy/plans	MOAC/DOA/PPRDO, PHPPRD MOAC/DOAE/BAPQD
Surveillance	MOAC/DOA/PPRDO MOAC/DOAE/BAPQD
Control	MOAC/DOA/PPRDO, PHPPRD MOAC/DOAE/BAPQD
Migratory Pest Outbreaks	(e.g. locusts, birds, armyworm)
Response strategy/plans	MOAC/DOA/PPRDO
Surveillance	MOAC/DOA/PPRDO MOAC/DOAE/BAPQD
Control	MOAC/DOA/PPRDO MOAC/DOAE/BAPQD
New Exotic Pest Eradication	(e.g. coconut beetle)
Response strategy/plans	MOAC/DOA/PPRDO, OAR
Surveillance	MOAC/DOA/PPRDO MOAC/DOAE/BAPQD
Control/eradication	MOAC/DOA/PPRDO MOAC/DOAE/BAPQD
Reporting to bilateral or international organizations	MOAC/DOA MOAC/ACFS

Infrastructure	Year: 2009
Number of designated staff for **surveillance** of field pests of national	Staffs from DOA/PPRDO – Entomology and Zoology Group, – Weed Science Research Group, – Plant Pathology Group Total = 112 staffs DOAE/BAPQD, trained Staff on plant pest surveillance and control over 76 provinces, 9 plant pest management center, 1 fruit fly control group including volunteer growers over 300 persons.
Number of designated staff for **surveillance** of migratory and periodically occurring pests	
Number of designated staff for **surveillance** of invasive species	
Number of designated staff for **control** of field pests of national	
Number of designated staff for **control** of migratory and periodically occurring pests	
Number of designated staff for **eradication** of invasive species	

Key Situation and Operation Indicators

(Outbreaks and invasions in the past 2 years)

New exotic species found established in country	Insects	Pathogens	Weeds
Total number for year: [most recent]	–	–	–
Total number for year: [year before]	–	–	–
Total number on record	–	–	–

Eradication or internal quarantine actions taken against economically important species			
Name of species			
Year of first discovery			
Location of first discovery			
Area affected [ha]			
Area treated [ha]			
Control method			

Pest outbreak actions	Outbreak 1	Outbreak 2	Outbreak 3
Name of species			
Year of outbreak			
Area affected [ha]			
Estimated damage $			
Area treated by government [ha]			
Expenditures by government [$]			
Control method			
More information			

Progress and Constraints

Main Progress in Recent Years (legislation, policies, infrastructure, investments, training, etc.)
Detection Survey for Mango Seed Weevil, *Sternochetus mangiferae* (Fabricius) (Insecta: Coleoptera: Curculionidae) in Thailand (2009)
Main Constraints (personnel, infrastructure, administrative, operational, training, etc.)
Skilled personnel, experiences, identification

IV. PEST MANAGEMENT

Last updated: June 2009

Executive Summary

During 2007-2008, MOAC did not change the national policy on IPM Programme. The country's key economic crops included rice, okra, asparagus, fruit crops, vegetables, field crops, and orchids.

However, the budget constraint had an impact on IPM activities. The Department of Agricultural Extension (DOAE) had to decrease the number of training programmes and farmer field schools (FFS). As regards the main IPM Programme, DOAE still encouraged the farmers' education and knowledge development, with focus on the change of attitude of farmers using highly toxic pesticides. The education helped them understand the principles and the framework of Good Agricultural Practices (GAPs).

The main component of the IPM implementation is to encourage farmers to use biological control. A number of bio-agents are introduced to replace or alternate with chemical pesticides.

Since the end of 2007, DOAE has set the project entitled "Using Integrated Pest Management for Decreasing Risk of Plant Pest Infestation" as the main activity of the Community Plant Pest Management Center. The objects of the project are to develop farmers into "Pests Management Professionals in IPM", to reduce damage to farmers crops, to encourage less investment, and to enhance community participation in the project.

Technology transfer in the project mainly relies on the adaptation process of FFS. To ensure the product safety for consumers from pesticide residues, products will be tested for chemical residues before being harvested.

Area-wide IPM of fruit fly control programme using the Sterile Insect Technique (SIT) has been carried out over a large area, and sometimes involves a major facility and a lot of equipment. The required financial resource may also be large. Even though a programme might be economical on a benefit/cost basis, it is not always affordable. Obtaining operating funds can be the most important issue facing a programme. Adequate financial resource affects the programme strategy and operations as well as the duration and reliability of programme support. In the case of Thailand's programme, financial support from the government is essential for the stability and success of the programme. Sometimes the government support is unreliable or not delivered in a timely manner. For a biological programme, this can easily cause delays, uncertainty, unnecessary repetitions of work, and even a programme failure.

The basic requirements for scaling up the pilot project to a national level include not only a complex procedure of incorporating new and better technologies but also the support of the government officials who have to be convinced. This often poses a huge challenge.

List of Key Legislation/Regulations/Rules for Pest Management

Web source for further information: –

(regarding pest management)	Yes	No
Do you have policies encouraging organic or low-pesticide use production	x	
Is IPM specifically mentioned in laws or ***policy documents***?	x	
Do you have official Good Agricultural Practice (GAP) or any other relevant food safety (ecofood, etc.) standards for pest management?	x	
Is pest management extension separate from general extension?	x	
Other policies: (subsidies, production inputs, etc.) IPM, control of pesticide use, reduction of pesticide use.		
Web source for further information: www.doa.go.th, www.doae.go.th		

Organization of Plant Protection Functions	Responsible Organizational Unit (Ministry/Department/Unit)
Policy development	MOAC/DOA, MOAC/DOAE/BAPQD MOAC/ACFS
Pest management research	MOAC/DOA/PPRDO
Control recommendations	MOAC/DOA/PPRDO
Pest management extension	MOAC/DOA MOAC/DOAE/BAPQD
IPM training	MOAC/DOA MOAC/DOAE/BAPQD
GAP training	MOAC/DOA MOAC/DOAE/BAPQD

Infrastructure	Year: 2009
Number of technical officers for pest management	DOAE = 67
Number of central, regional, provincial or state offices	DOAE = 10, 6, 76
Number of district and village level field offices	DOAE = 780 districts
Number of field/extension agents for pest management advice	DOAE = 7 111
Number of field/extension agents trained in IPM-FFS facilitation	DOAE = 7 111
Number of government biocontrol production/distribution facilities	DOAE = 9 plant pest management centers and 1 sterile fruit fly mass rearing facility
Number of government biopesticide production/distribution facilities	DOAE = 9 plant pest management centers
Number of general extension staff involved in pest management	DOAE = 7 111
Number of designated plant protection technical officers for extension	DOAE = 67

Key Situation and Operation Indicators

Pest Management	Yes	No
Does the country have a National IPM Programme? *If yes, give Name and Address of IPM Programme:* IPM Programme 1: IPM development on economic crops Address: MOAC/DOA/PPRDO IPM Programme 2: Area-wide Integrated Control of fruit flies Address: MOAC/DOAE/BAPQD IPM Programme 3: Establishment of Community Plant Pest Management Center Address: MOAC/DOAE/BAPQD	x	

Does the country have specific IPM extension programmes? *If yes, in which crops?:* baby corn, orchid, rice, sugarcane, mango, okra, mangosteen, asparagus, chilli and pomelo	x	
Does the country have specific IPM research programmes? *If yes, in which crops?:* pumelo, tangerine, longan, ginger.	x	
Does the country have specific GAP extension programmes? *If yes, in which crops?:* mango, longan, chilli, mangosteen, pomelo, rice, green leaf vegetable, asparagus, orchid, baby corn, pineapple, fruit crops and	x	
Does the country have specific GAP research programmes? *If yes, in which crops?:* (Durian, longan, orchid, fresh orchid cut flower, pineapple, pomelo, coffee, non-heading type chinese cabbage, tomato, asparagus, chinese kale, onion, cabbage, chilli, yard long bean, sugar pea, baby corn, chinese cabbage, shallot, cassava, rubber, mango, tangerine, curcuma)	x	

Market shares (estimated value, volume or area under control)	**Year: 2009**
Size of chemical pest control market	98%
Size of biopesticides market	1%
Size of biological control agents market	1%

Major pest control requiring crops (requiring most pesticide applications)	**1st**	**2nd**	**3rd**
Affected crop	Para rubber tree	Oil Palm tree	Tangerine
Name(s) of pest(s)	Annual weed	Annual weed	Leave minor
Estimated crop loss	Unestimatable	Unestimatable	Unestimatable
Affected area	Unestimatable	Unestimatable	Unestimatable
Number of pesticide applications or amount of pesticide used	2-3/yr	2-3/yr	5/7 days spray interval (70/48/yr)
Government action taken	Appropriated Application techniques		

Cooperation Projects			
Purpose/Target	Donor	Amount	Years (start-end)
Purpose/Target of government follow-up programmes		Amount	Years (start-end)

Pest Management Extension	**Year:**
Number of farmers trained in IPM during the year	13 600 (2008-2009)
Number of IPM-FFS conducted during the year	13 600 (2008-2009)
Number of farmers trained in GAP standards during the year	310 000 (2008-2009)
Area under IPM/low pesticide management [ha]	N/A
Area under organic/pesticide-free management [ha]	Over 12 provinces 440 farm owners
Crops in which IPM or other ecology friendly programmes are successfully implemented: asparagus, baby corn, orchid cut flowers, okra	
Crops grown organic/pesticide-free: rice, banana	

Progress and Constraints

Main Progress in Recent Years (legislation, policies, infrastructure, investments, training, etc.)
Main Constraints (personnel, infrastructure, administrative, operational, training, etc.)
There are a large number of small farmers/growers in Thailand, therefore it is very difficult for implementation.

V. PESTICIDE MANAGEMENT

Last updated: June 2009

Executive Summary

The Hazardous Substances Act B.E. 2535 (1992) was amended in B.E. 2551 (2008) and is enforced. Under this Act, the Department of Agriculture (DOA), the Ministry of Agriculture and Cooperatives, gave the Notification on Registration and Licensing with DOA responsible for issuing hazardous substances certificates. The main purpose of this Notification is to require pesticide companies or laboratories to adopt the Good Laboratory Practices (GLPs).

List of Key Legislation/Regulations/Rules

(year, title and possibly short description)

1. The Hazardous Substances Act B.E. 2535 (1992) amended by The Hazardous Substances Act (No. 3) B.E. 2551 (2008)
2. Ministerial Regulation (B.E. 2537/1994) (3 regulations issued under Hazardous Substances Act B.E. 2535 (1992))
3. Notification of Ministry of Industry on
   - 3.1. List of Hazardous Substances
   - 3.2. Hazardous Substances According to Section 3 "Civil Obligation and Responsibility" B.E. 2538/1995
4. Notification of Ministry of Agriculture and Cooperatives on

   Registration of Hazardous Substances under Responsibility of Department of Agriculture B.E. 2551 (2008)

   Determination of Deviation from the Specified Quantity of Active Ingredient Hazardous Substance
   - 4.3. Label and Toxicity Level of Hazardous Substances

     Criteria and Procedure for Production, Import and Possession of Hazardous Substances under Responsibility of Department of Agriculture
   - 4.5. Appointment of Hazardous Substances Act B.E. 2535 (1992) Officials
   - 4.6. Exemption for Implementation of Hazardous Substances Act B.E. 2535 (1992)
   - 4.7. Managing of Type IV (Banned) Hazardous Substances
   - 4.8. Determination of Storage Site for Possession of Hazardous Substances
   - 4.9. Specification of Hazardous Substances (One Notification for one pesticide, already done on paraquat dichloride and sodium nitrate)
5. Notifications of Department of Agriculture on
   - 5.1. Determination on Details, Criteria and Procedure for Pesticide Registration
   - 5.2. Notification on Action Made concerning Type II Hazardous Substances

     Criteria, procedure and condition on determination of trade name of hazardous substances

     Determination of experimental design and report on efficacy test of hazardous substances
   - 5.5. Efficacy test areas
6. Rules of Department of Agriculture
   - 6.1. Application for Possession of Hazardous Substances in Provinces other than Bangkok B.E. 2539 (1996)

Web source: www.doa.go.th, www.diw.go.th

(regarding pesticide management)	Yes	No
Do you have national pesticide reduction targets? *If yes, what is the target:* ***25% in 2009***	x	
Have you ratified the Rotterdam (PIC) Convention?	x	
Have you ratified the Stockholm (POP) Convention?	x	
Have your ratified the Basel Convention? (hazardous wastes)	x	
Have your ratified the Montreal Protocol? (CH_3Br phasing-out)	x	
Have you reported the observance of the Code of Conduct to FAO according to Art. 12 of the Code?	x	
Have you adopted Good Laboratory Practices (GLP)?	x	
Pesticide Registration		
Do you require pesticides to conform to relevant FAO or WHO specifications?	x	
Do you allow the "me-too" registration and sale of generic pesticides?	x	
Do you require data on product equivalence for generic registration?	x	
Do you conduct country-specific risk assessments for…		
occupational risks?	x	
consumer risks?	x	
environmental risks?	x	
Have you adopted the Global Harmonized System (GHS) for pesticides hazards evaluation and labelling?	x	
Do you accept evaluation results from other countries?	x	
Do you accept field studies conducted in other countries?	x	
Do you require environmental fate studies?	x	
Incentives/Disincentives		
Do you have a special tax on pesticides to cover externality costs?		x
Do you subsidize or provide low-cost pesticides?		x
Do you subsidize or provide low-cost biopesticides?		x
Other policies:		
Web source for further information: www.doa.go.th, www.diw.go.th		

Organization of Plant Protection Functions	Responsible Organizational Unit (Ministry/Department/Unit)
Legislation	MOAC/DOA/OAR MOI
Registration	MOAC/DOA/OAR
Licensing of shops	MOAC/DOA/OAR
Licensing of field applicators	MOAC/DOA/OAR
Enforcement/inspections	MOAC/DOA/OAR
Testing of pesticide efficacy	MOAC/DOA/PPRDO, PHPPRD
Development of pesticide use recommendations	MOAC/DOA/PPRDO, PHPPRD
Safe use training/extension	MOAC/DOA MOAC/DOAE TABA TCPA
Food residue monitoring	MOAC/DOA MOPH/FDA
Environmental monitoring	MOAC/DOA MONRE/DOPC
Health monitoring	MOPH

Other Stakeholders:	
Pesticide Industry Association	Thai Agri-Business Assoc (TABA); Thai Crop Protection Assoc (TCPA)
Civil Society Organizations	

Infrastructure	Year: 2009
Number of registration officers	8
Number of enforcement officers	234
Number of department quality control laboratories	9
Number of quality control laboratory personnel	10
Number of department residue analysis laboratories	13
Number of residue laboratory personnel	18

Key Situation Indicators

Pesticide Trade:	Tons	$ '000 Value
Imports	62 870	548 049
Manufacture	N/A	N/A
Export	930.77	N/A
Domestic Use/Sales	N/A	N/A
Pesticide Use Profile:	**Tons (a.i./formulation to be specified)**	**$ '000 Value**
Agriculture	62 022	542 011
Chem. Insecticides	9 470 (15.06%)	130 784 (23.86%)
Chem. Fungicides	7 098 (11.29%)	72 486 (13.23%)
Chem. Herbicides	44 063 (70.09%)	328 201 (59.89%)
Chem. Others: e.g. molluscicide, acaricide	1 391 (2.21%)	10 540 (1.92%)
e.g. Avamectrin, Bt, Neem	–	–
Other purposes e.g. PGR	848 (1.35%)	6 038 (1.10%)
	62 870	***548 049***

Post Registration Monitoring

Testing, Quality Control and Effects in the Field	Yes	No
Do you have significant problems with low-quality pesticides in the market?	x	
Do you have significant problems with pesticide resistance?	x	
Do you have a list of pesticides under close observation for problems	x	
Source for more information:		

Health and Environmental Information	Yes	No
Do you maintain data on pesticide poisoning cases?	x	
Do you have a system to monitor pesticide residues in food?	x	
Do you have a system to monitor pesticide residues in the environment?	x	
Do you have significant problems of environmental contamination from pesticides?		x
Do you have data on pesticides effects on wildlife and ecosystems?		x
Source for more information: www.doa.go.th , www.pcd.go.th		

Pesticide Disposal	Yes	No
Do you have system to collect and safely dispose of used containers and small quantities of left-over pesticides?	x	
Do you have an inventory of outdated and obsolete pesticides in the country? (e.g. banned and no longer traded, but still in storage)	x	
Do you have illegal trade in pesticides? if yes: what is the estimated amount: _____	x	
Source for more information:		

Key Operation Indicators

Registration/Regulation/Monitoring	Year: 2009	
	a.i.*	Trade Name
Number of registered pesticide products	416	22 920
Number of registered biopesticides (Avamectrin, Bt, Neem, etc.)	9	N/A
Number of restricted-use pesticides/formulations	11	N/A
Number of banned pesticides	96	
Number of licensed outlets	11 009	
Number of licensed field applicators (professional and/or farmers)	1 290	
Number of licensing violations reported during year	165	
Number of quality control analyses conducted during year	3 677	
Number of food samples analyzed for pesticide residues during year	10 123	
Number of samples exceeding MRL	–	
Number of environmental samples analyzed for pesticide residues	21	

* active ingredient

Pesticides Restricted in Recent Years	
Year	Name of active ingredient or hazardous formulation
2009	According to annex II of country report

Pesticides Banned in Recent Years	
Year	Name of active ingredient
2009	According to annex I of country report

Cooperation Projects			
Purpose/Target	Donor	Amount	Years (start-end)
National Methyl Bromide Phase-out Plan	Multilateral Fund		
Purpose/Target of government follow-up programmes		Amount	Years (start-end)

Progress and Constraints

Main Progress in Recent Years (legislation, policies, infrastructure, investments, training, etc.)
List of banned/prohibited pesticides in 2005
Main Constraints (personnel, infrastructure, administrative, operational, training, etc.)

VI. ADDITIONAL ISSUES OF CONCERN (Last updated: June 2009)

Genetically Modified Crops	
Name of GMO Crop	Area under Cultivation [ha]