

**Country-case Studies on  
Reflecting National Circumstances and Development Priorities in  
National Codes on Good Agricultural Practice that can be Benchmarked  
to EurepGAP**

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## Abbreviations

ACFS	National Bureau of Agricultural Commodity and Food Standards
DEP	Department of Export Promotions
DOA	Department of Agriculture
DOAE	Department of Agricultural Extension
EU	European Union
EUREPGAP	Euro Retailer Produce Working Group on Good Agricultural Practices
GAP	Good Agricultural Practices
GHP	Good Hygienic Practices
GMP	Good Manufacturing Practices
Ha	Hectare
HACCP	Hazard Analysis and Critical Control Points (food safety management system)
JAS	Japan Agricultural Standard
MOAC	Ministry of Agriculture and Co-operatives
NDOAE	Office of Agricultural Extension and Development Region 6, Chiang Mai
OMIC	Overseas Merchandise Inspection Co., Ltd.
OSS	Technical One Stop Service
US	United States of Amer

## **Introduction and Summary**

### **Background and Rationale of the Project**

The project was commissioned by the UNCTAD Secretariat in order to

- a) Identify the potential impact of national GAP codes on the major stakeholders (producers, local communities, exporters and the government)
- b) Study the market access and related developmental potential of the benchmarking of national codes on GAP in developing countries to the EurepGAP standard
- c) Review options for shaping national GAP and related policies and measures in a way that duly reflects national conditions and development priorities

The study and analysis was conducted over a period of 6 weeks during early October – early November 2005. The methodology involved interviews with key informants, government agencies and actors in the value chain (growers, collectors, and exporters) together with attending an FAO Thailand Workshop on Good Agricultural Practices for Fresh Fruit & Vegetables and a review of existing studies.

### **Main findings**

There are 12 main exporting crops (fruits & vegetables) consisting of longans, durians, mangosteens, mangoes, asparagus, okra, baby corn, pomelos, lychees, tamarind, ginger and chili. Most of fruits and vegetables from Thailand are mainly exported to regional markets such as Japan, Taiwan, China, etc. They are quite related to GAP, a national food safety standard and other higher level standards such as EurepGAP as those standards assure the safe produce at the farm level. Among the total kinds of vegetables and fruits exported, baby corn, asparagus and mangoes were selected for the study.

#### *Baby Corn*

Thailand is the world leader in baby corn export, holding an 80% market share. Even though a small proportion of baby corn produced were exported as fresh, chilled and frozen (about 15%), the majority of it was exported to the UK and Japan while the biggest export value of canned products was exported to the U.S. Export revenue of fresh baby corn was considerable, at approximately US\$ 6.1 million in 2004, and represented 3.47% of Thailand's total vegetables export value.

Upstream activities are dominated by collector-brokers who provide a range of services to growers and link growers to packinghouses and manufacturer-exporters. The higher level standard like that of EurepGAP has a high impact on exporters of baby corn who export mainly to European markets especially the UK. Collector-brokers manage by those exporters to require agricultural practices that meet EurepGAP requirements rather than GAP requirements. Moreover, the implementation of EurepGAP is effective as growers have a deep commitment to follow the code of practices.

#### *Asparagus*

Asparagus has begun to stand out as a high value dynamic product and offer small-scale Thai farmers an alternative high-value crop that has a relatively high rate of return on investment. Export revenue of fresh asparagus was approximately US\$ 24.6 million in 2004 and represented 14% of Thailand's total vegetable exports.

Worldwide, Thailand is among the top 10 asparagus exporters and has significant market shares in regional markets especially Japan and Taiwan, but only a small proportion (1%) of exports to Europe. However, there is still a potential to penetrate European markets as only 11% of the consumers currently buy asparagus and they are concerned with quality rather than price.

Most of growers belong to groups and grower groups managed by packinghouses and manufacturer-exporters are quite effective in the implementation of GAP or even higher level GAP like EurepGAP. Compared to baby corn, EurepGAP has rather low impact on

the case of asparagus as most of the asparagus is mainly destined for regional markets which require only GAP certificate issued by DOA

### *Mangoes*

Mangoes are one of the top ten fruit exports. In 2004, mango was ranked 6<sup>th</sup> in exports after longans, durians, mangosteens, pomelos, and lichees. Mangoes are mainly destined for Asian markets. Japan is the biggest market for fresh mango exports from Thailand, only small amount is exported to Europe. Hence, a GAP certification is quite important to the exporters. EurepGAP almost has no impact to the exporters except exporters who export to European markets.

### *Overall*

Some of fruits from Thailand are still weak in European markets. This is due to several reasons as follows:

#### *1. High Transportation Cost*

High transportation cost is one barrier that reduces competitiveness in price of fresh fruit and vegetable exports from Thailand. The fruits like mango can not compete with mango from other & closer countries like Israel, Brazil and African. This is because of the distance to EU by sea and by air. To take some example, mango from Israel takes only 1 week to EU by sea, however, from Thailand it takes totally about 25-27 days. This even more expensive if transport by air, air freight rate is about 90 baht for 1 kg. mango.

#### *2. Plant Quarantine Issues*

Some fruits like pomelo and citrus are linked to plant quarantine issue with EU. The citrus items are prohibited to export to EU because of some plant diseases.

#### *3. Recognition of some fruit from Thailand*

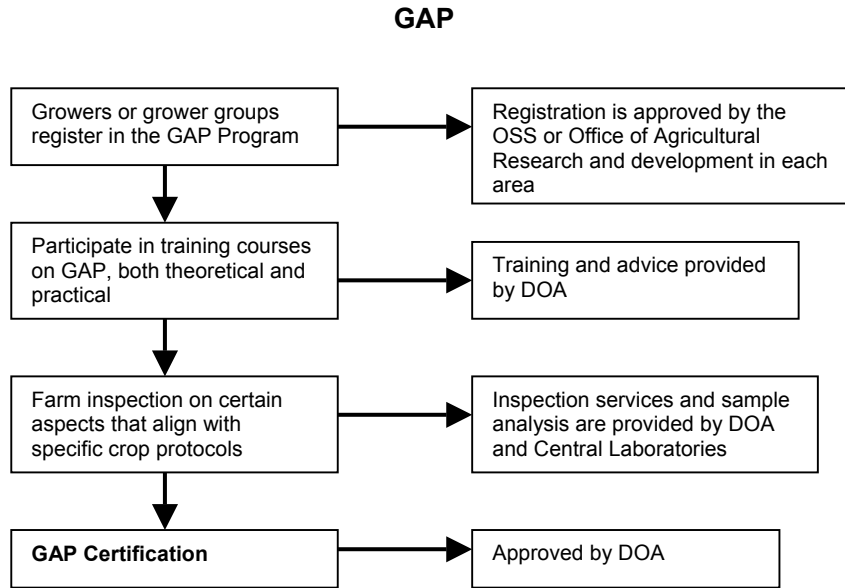
Some fruit from Thailand, mango varieties from Thailand for instance, are newly in EU markets and recognition of Thai mango still low. The country needs more public relations to create awareness in the markets.

#### *4. Customer Preferences*

To some fruit like mango, European customers prefer sweet & sour mango varieties rather than pure sweet mango varieties. The taste of mango varieties from Thailand "Nam Dok Mai" is more sweet compare to mango from other region. This may creates low preference for Thai mango varieties.

About standards on food safety, they are varied depend on importers' requirements. In case of export to regional markets, only GAP certificate issued by DOA is required. However, various certification schemes include EurepGAP are required in case of exporting to European markets. EurepGAP is important only to some exporters who access European markets. This standard is possible only to large manufacturers/exporters rather than small producers as certification costs are too high. It is worthwhile for exporters to pay for certifications as it ensures the access to those markets

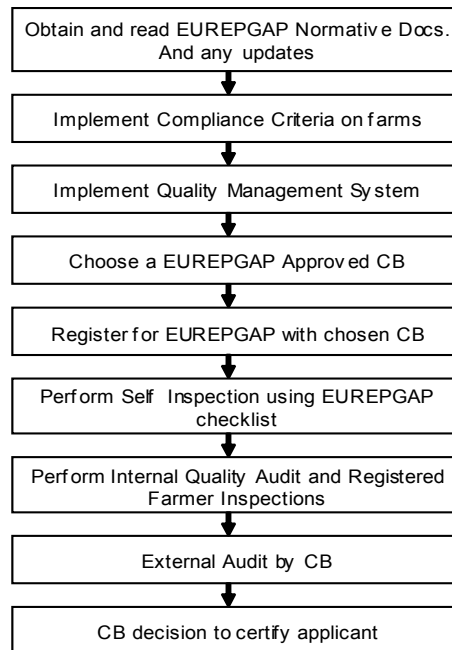
To compare the requirements of EurepGAP with GAP, in general, the requirements are quite similar. However, there are some points different between them such as legal owner of the standard, process of being certified, detail of the requirements, etc. EurepGAP standard belongs to private sector because the standard was established by leading retail groups but GAP standard belongs to public sector as the standard was established by government agencies and the legal owner is also government agencies. The procedures of being certified can be compared as the chart below;



**Figure 1: GAP Certification Process Flowchart**

Source: One Stop Service (OSS), DOA

**EUREPGAP Group Certification Process Flowchart**



**Figure 2: EUREPGAP Group Certification Process Flowchart**

Source: [www.eurep.org](http://www.eurep.org)

EurepGAP certification process has more details and is a more complicated process than GAP. Also EurepGAP has many more control point details compared to a national GAP.

In the current situation, the entire certification process is carried out by the government beginning with setting the standards and being a national regulatory body (by ACFS), to providing advisory services and farm inspection to finally issuing certification (by DOA). As a result, it takes a long time to get certification. The private sector and stakeholders still have a limited role and are not much involve in the development of a national GAP.

Also, a national GAP standard is still not internationally recognised and is not accepted in some markets especially in Europe as farm practices still do not meet the higher level standard requirements and the tracking system is ineffective.

There are also impediments regarding the implementation of a national GAP such as the growers' lack of knowledge or low education, low motivation/incentive due to pricing being the same for GAP and non-GAP products, limited number of large exporters to promote the GAP program, confusion about the program, etc.

## **Recommendations**

### ***1. Private sectors should have a more significant role.***

UNCTAD can recommend that the government involve the private sector and allow them to have more significant role. The government can play the role of regulatory body, setting up standards, regulations, a code of practices and good monitoring systems. Then, government should outsource provision of advisory service on GAP, farm inspection service and even issuing certification to the private sector. This will make the certification process faster and more effective.

### ***2. Show the government cases of the success of involving the private sector in a national GAP program.***

Due to the experience in several programs related to GAP, UNCTAD could show the success of collaboration between the public sector and private sector for the development of a national GAP in other countries.

### ***3. The GAP code of practices should have minimum components similar EurepGAP or other higher level standard***

A national GAP should have at least the minimum components of the EurepGAP standard. Minimum components consist of biological, chemical and physical contamination standards. Currently, chemical contamination seems to play a major role in the national GAP. It is still impossible to underline those 3 components at the same time, rather, it is a kind of gradual adaptation from concern with chemical contamination to biological contamination to physical contamination. Hence, in order to bring a national GAP in line with international buyers' requirements, the standards should emphasize those 3 components

### ***4. Public - Private Partnership***

As the cost of EurepGAP is very high and small producers cannot afford it, UNCTAD could help creating one public-private partnership with an international partner and use this to achieve breakthroughs in key issues such as:

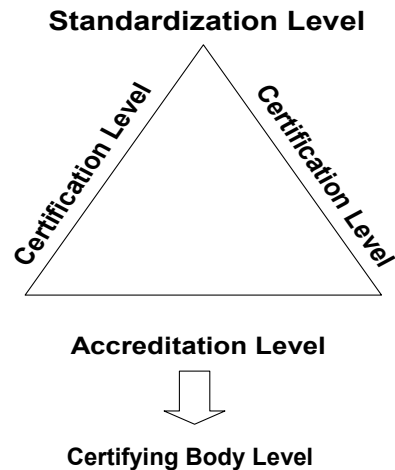
- Food safety
- Linking EU buyers and local sellers and upgrading standards and practices along the supply chain

Private sector on the one hand can finance some part of certification costs, on the other hand, public sector can subsidize the rest. This will make it possible for small producers to implement EurepGAP.

**5. Negotiate with foreign buyers to harmonize standards**

Several exporters face the situation of non-harmonized standards which means several certification schemes required by different importers. This mostly occurred in the case of exports to EU markets. UNCTAD could play role as middleman in the negotiation between exporters and importers to accept only a single standard. This can create a win-win situation for both exporters and importers. Exporters on the one hand can reduce certification costs and importers on the other hand can get products at a cheaper price.

## Harmonized GAP Standard



**Figure 3: Harmonized GAP Standard**

**6. Pool the GAP programs from different countries to set up minimal standards for international GAP**

UNCTAD could pool the successful GAP programs which vary from country to country and set up the minimal standards for international GAP which is accepted worldwide. The standard can be used by all UN member countries. This will create a harmonized standard.

## 1. Overview of production and trade patterns of horticultural products and the role of EurepGAP

Thailand is a country which exports many kinds of agricultural products. The Department of Agriculture (DOA) was assigned by Ministry of Agriculture and Co-operatives (MOAC) to set up good agricultural practices (GAP). The Thai GAP was programmed to the Thai farmers, the National Bureau of Agricultural Commodity and Food Standards (ACFS) was founded as a national regulatory body for food safety. The Thai government also declared the year 2004 as the Food Safety Year. The DOA set up a food safety program with 4 strategies: 1) a strategy on agricultural inputs and raw materials, 2) a strategy on production at the farm level, 3) a strategy on controlling the crop processing plants, and 4) a strategy on quality crop production. With regard to the second strategy, the DOA will encourage farmers to register under the DOA food safety program for GAP certification. The target for registered farmers under this program during 2004-2008 is 145,000 farms. There are 29 target crops with 12 main crops for export and 17 potential crops.

The main export crops are longans, durians, mangosteens, mangoes, asparagus, okra, baby corn, pomelos, lichees, tamarind, ginger and chillies. The other target crops are rice, pineapples, young coconuts, longkong, rambutan, coffee, peanuts, soybeans, oranges, cabbage groups, beans, chili groups, melon groups, herbs, sweet corn, onions and bananas.

Most of the Thai fruits and vegetables are exported to the Asian markets, which do not required EurepGAP for the food safety aspect. The Thai government food safety program, developed by the DOA, is still accepted among the Asian markets included the Japanese market which added some chemical and pest control regulations.

Regarding the Thai exporters' aspect, EurepGAP is only required for some EU markets, which were not the main markets for Thai agricultural products. Presently, if the produce passes the importing country requirements for food safety, most of the importers, including those of EU countries, will give priority to pricing before EurepGAP certification. During periods of shortage of products, the importers may also ignore the EurepGAP certification requirement. EurepGAP in Thailand is regulated in only some areas where the exporters aimed to export their commodities to some EU markets which strictly required EurepGAP. Therefore, EurepGAP in Thailand shares only 2% of the number of EurepGAP certified area in Asia (Figure 1).

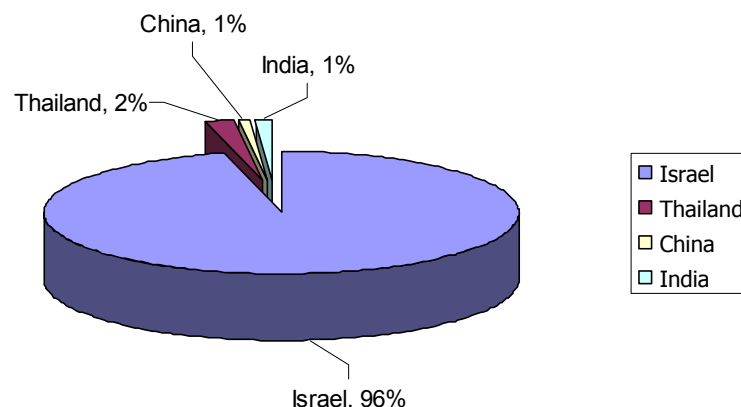


Figure 1: Percent Share of EurepGAP Certified Area in Asia

Source: EUREPGAP c/o FoodPlus GmbH

### **1.1 Main Export Products and Main Export Markets**

Fresh/ chilled, frozen and dried fruits and vegetables are the key export agricultural items from Thailand. They rank 8<sup>th</sup> and 9<sup>th</sup> with an export value of US\$ 244.30 and US\$ 175.70 million, respectively in 2004 (Information Technology and Communication Centre, DOA). The average growth rate of fresh/chilled, frozen and processed fruits and vegetables was 9% during 1997-2003 (DOAE, 2005).

Among all the fresh vegetables and fruits export, baby corn, asparagus and mangoes are the key export items from Thailand. Thailand is the world leader in baby corn export, holding an 80% market share. The majority of fresh baby corn is exported to the UK and Japan while the biggest export value of canned products is to the U.S. As for asparagus, Thailand is among top 10 asparagus exporters and has significant market shares in regional markets especially Japan and Taiwan. Regarding mangoes, it is one of top 10 fruits exported, mainly to Asian markets and especially Japan.

Among those 3 crops selected, baby corn is mainly exported to EU markets, especially the UK, followed by asparagus. Although, a small amount of asparagus from Thailand is exported to EU markets, there is still an opportunity for asparagus from Thailand to penetrate those markets as they are concerned with the quality rather than price. Those 3 crops are highly related to Good Agricultural Practices (GAP) as they go mainly to export markets.

#### **Baby Corn**

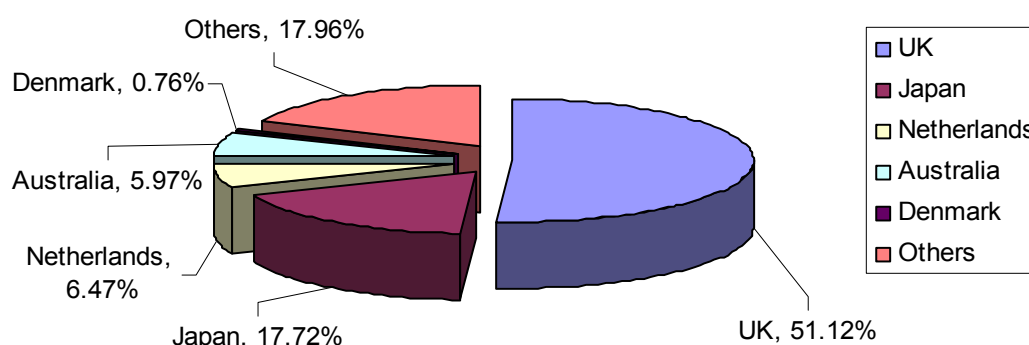
Over the past few decades, baby corn has shown a remarkable success as an export vegetable for the country as a whole (DOAE, 2005). However, prices have been stagnant for years. In 2004, export revenues were approximately US\$ 6.1 million and represented 3.47% of Thailand's total vegetable export value. The value of total fresh baby corn exports rose from US\$ 4.2 million to US\$ 6.1 million during 2001-2004 (Department of Export Promotions, 2005).

**Table 1: Value of Thailand's Fresh Baby Corn Exports in US\$ Mil**

2001	2002	2003	2004
4.2	4.0	4.8	6.1

Source: Department of Customs, 2005 and Department of Export Promotions, 2005

Most of Thailand's baby corn (approximately 90%) is destined for the export market and most of that (80% of exports) is canned baby corn, with fresh or chilled and frozen capturing smaller percentages (15% and 5% respectively).



**Figure 2: Main Export Markets for Fresh Baby Corn (by value), 2004**

Source: Department of Customs, 2005.

European countries were the main destination for fresh baby corn from Thailand. Among those countries, the UK was the biggest importer representing 51.12 percent of the total value of fresh baby corn exported from Thailand in 2004. Japan was the second biggest market representing 17.72 percent of the total export value of fresh baby corn in 2004, followed by the Netherlands, Australia, Denmark, Taiwan, Norway, USA, Germany, and Switzerland (Department of Customs, 2005). The British and Japanese markets were very sensitive to quality and maintenance of high food safety standards. Thailand could maintain an advantage over similar-level competitors or entrants in these markets if it can stay ahead of competitors in terms of GAP and other quality standards.

Markedly, Malaysia was one of the top three biggest importers of Thai fresh baby corn in terms of volume, representing 13.29 percent of the total exported volume in 2004 (Department of Customs, 2005). However, in terms of value, Malaysia represented only 0.76 percent of fresh exports. This indicated that Malaysian importers are very sensitive to price and should not be relied upon for the bulk of Thai fresh baby corn exports.

### ***Asparagus***

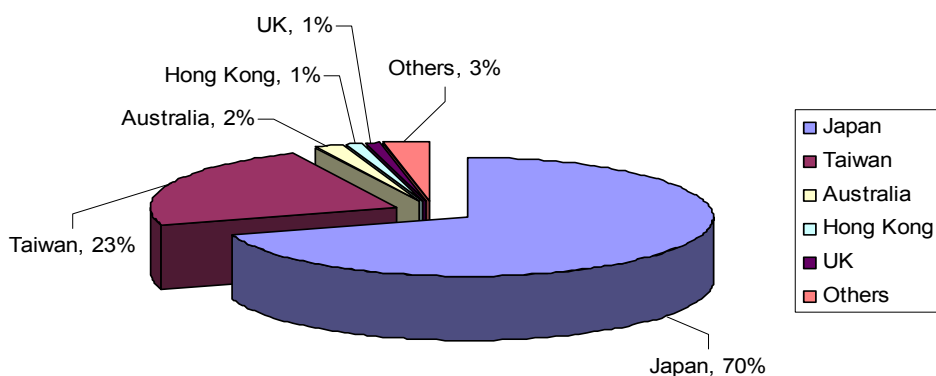
Among total vegetables exports, asparagus has begun to stand out as a dynamic high-value agricultural export earner for Thailand in recent years. In 2004, export revenues were approximately US\$ 24.6 million and represented 14% of Thailand's total vegetable exports (Department of Export Promotions, 2005). The value of total fresh asparagus exports rose rapidly from 2001-2004 from US\$10.9 million to US\$24.6 million.

**Table 2: Value of Thailand's Fresh Asparagus Exports in US\$ Mil**

2001	2002	2003	2004
10.9	13.8	15.6	24.6

Source: Department of Customs, 2005 and Department of Export Promotions, 2005

Most of Thailand's asparagus (approximately 75-80%) is destined for the export market and most of that (75-80% of exports) is fresh or chilled green asparagus, with frozen and canned capturing smaller percentages (20-25% and 1-2% respectively).



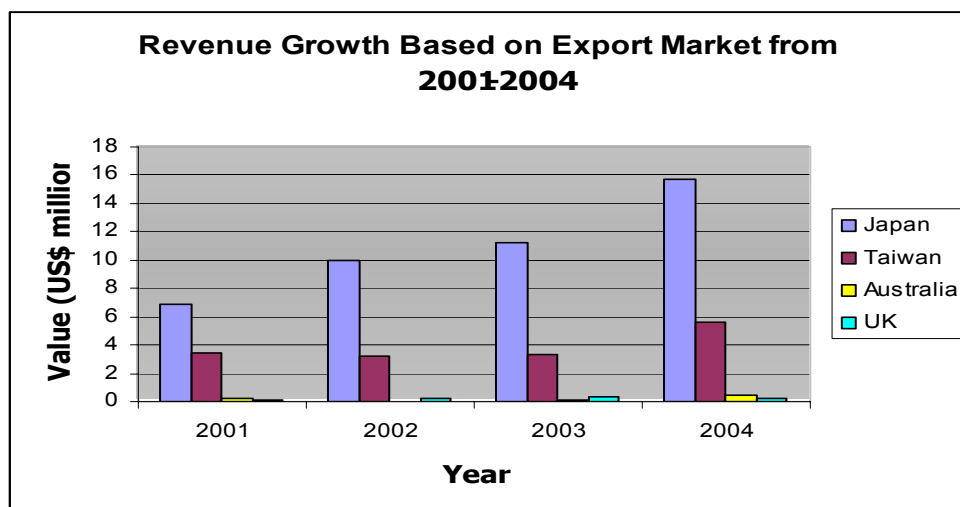
**Figure 3: Main Export Markets for Asparagus (by value), 2004**

Source: Department of Customs, 2005.

Total volume of asparagus export in 2004 was 11,910 tons with the export value of US\$ 24.6 million (DEP, 2005). Taiwan and Japan represented 58.07% and 35.93% of total volume of asparagus exported from Thailand respectively in 2004. Notably, while Taiwan represents the majority in volume, it is Japan that provides the largest percentage of the total value (70.16%), thus indicating much better prices per unit that can be obtained from the Japanese market (Department of Customs, 2005).

Australia was Thailand's distant third export market in term of both export volume and value, representing 2.23% and 1.96% respectively in 2004.

The UK was another export market, representing 1% of country's export value in 2004. The UK has always been in the top five export markets that generate high revenue for Thailand over the past 4 years. Most asparagus sent to the UK is supplied directly to supermarkets and other high-end retail outlets. There is still high potential to penetrate the UK market as only 11% of the consumers currently buy asparagus (FAS UK, 2003). However, EU importers and consumers are quite concerned about food safety and quality.



**Figure 4: Revenue Growth Based on Export Markets**

Source: Department of Customs, 2005.

**Mangoes**

Mangoes are a specialty tropical fruit and are grown in all regions but are concentrated in the Northeast. Mangoes from that region will be processed as dried, pickled, etc. With regard to the fresh mango export, the main products come from Chacherngsao Province (in the east) and Pitsanulok, Sukhothai and Chiang Mai Provinces (in the north). At present, mango production has been greatly developed through improved varieties to meet the consumers' taste and preference. Overseas demand for Thai mangoes has increased steadily in the form of both fresh and canned fruit. In 2004, mangoes were at the 6<sup>th</sup> rank of top fruits exported after longans, durians, mangosteens, pomelos, and lychees.

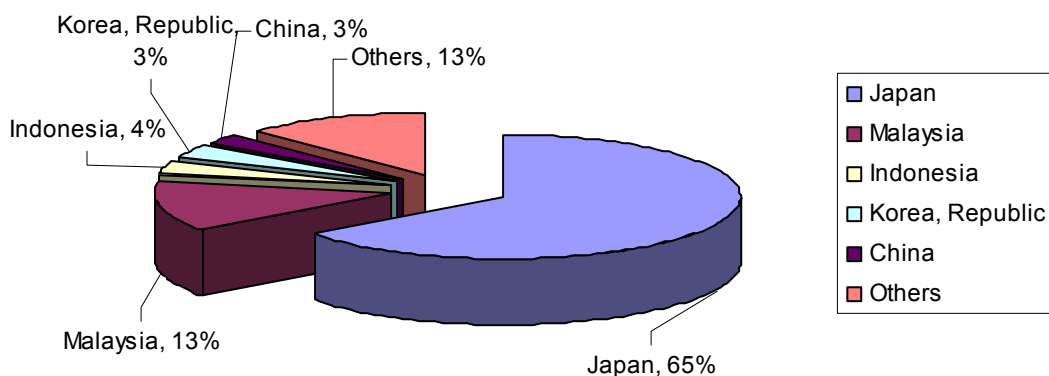
The total plantation area for mangoes in Thailand in 2004 was 114,156 hectares with the yield of 403,312 tons per year. Out of 403,312 tons produced, 11,032 tons are from GAP farms and only 5,785 Tons from GAP farms were exported, which represented 1.43% of the total yield and 52.44% of total yield from GAP farms. This indicated that only a small proportion of mango products can be exported.

In 2004, export revenues were US\$ 4.5 million and represented 1.84% of Thailand's total fruits export value. The value of total fresh mango export shows a downward trend from US\$ 5.0 million in 2001 to US\$ 4.5 million in 2004 (Department of Export Promotions, 2005). Insect problems such as fruit flies and high chemical usage for mangoes are one of the impediments to export. It has been found that mangoes have a high residue of chemicals over the MRL limit when compared to other top fruit exports such as durians, mangosteens, longans, etc.

**Table 3: Value of Thailand's Fresh Mango Exports in US\$ Mil**

2001	2002	2003	2004
5.0	3.4	4.4	4.5

Source: Department of Export Promotions, 2005



**Figure 5: Main Export Market for Mango (by value) 2004**

Source: Department of Customs, 2005.

Asian countries are the main destination for mangoes exported from Thailand. Malaysia and Japan represented 46% and 24% of export volume respectively in 2004. However, in terms of export value, Malaysia represented only 13% compare to 65% of export value from Japan. This indicated that Malaysia is sensitive to price rather than quality. Although Japan is the main export market that generates a high revenue for Thailand each year, the country is quite sensitive to quality and food safety especially concerning fruit flies and the level of residues in mangoes. Besides those two markets, Indonesia, China and Korea are another export market for mangoes from Thailand.

There is still high potential to expand the markets for mangoes from Thailand if the quality is improved and residues are removed to meet the requirements from importing countries.

### **1.2 Producers Profile for the Main Export Products**

Most of Asparagus and Baby Corn growers are small holding growers with an average size of 0.24 - 0.32 hectares and 0.8 - 1.6 hectares, respectively. Almost 99% of the small asparagus growers are members of grower groups. Contract farming is offered directly to the groups by packinghouses and manufacturer-exporters. Most companies offer groups set prices for one year while some adjust the price slightly 2 - 3 times during the year according to larger market fluctuations. Different companies require various levels of agricultural practices and food safety requirements that are specified in the contracts. Contracts outline strict specifications and prices of the different grades as well as guidelines for farming and accounting practices.

As for baby corn, almost 99% of the small growers rely on collectors or brokers through informal groupings. Collectors or brokers link growers to packinghouses and manufacturer-exporters, providing market access to growers. The agreement between collectors or brokers is not in written form but is based on trust. Collector-brokers also require levels of agricultural practices and food safety requirements depending on the requirement from packinghouses and manufacturer-exporters.

The asparagus groups and baby corn collector-brokers who are under exporting companies that are mainly destined for European Markets require agricultural practices that meet EurepGAP requirements. Mostly the EurepGAP farms are located in the western part of Thailand.

As for mango, the average farm size is approximately 0.8 – 1.6 hectares. Similar to the case of asparagus, most of the growers whose products go mainly to export markets, are members of a group. Contract farming is offered directly to the groups by exporters with the set prices for one year. Different companies require various levels of agricultural practices and food safety requirements that are specified in the contracts.

**Table 4: Summary of Number of Growers, Plantation Area, Average Yield, and Total Yield**

<b>Vegetables/ Fruits</b>	<b>No. of Small Growers</b>	<b>Plantation Area (Ha)</b>	<b>Average Yield per Ha. (Tons/ Ha)</b>	<b>Total Yield (Tons)</b>
Asparagus	867	445	0.69	308
Baby Corn	66,385	31,668	19.44	615,733
Mangoes	234,202	114, 156	3.53	403,312

Source: NDOAE, 2005

To comply with the food safety requirements, most of growers of asparagus, baby corn and mangoes have GAP certification as summarize in the table below;

**Table 5: Summary of Number of GAP farm and QGAP Certificate**

<b>Crops</b>	<b>No. of GAP Farms</b>	<b>No. of QGAP</b>
Asparagus	3,803	3,416
Baby Corn	1,903	1,551
Mangoes	7,762	6,248

Source: Technical One Stop Service, DOA, 2005.

There are a few large national producers of asparagus and baby corn, all of them are also exporters who have their own farms and several grower networks. Those producers include Taniyama Siam, Kampaeng Saen Commercial, Swift, and River Kwai.

As for Mangoes, some large national producers are the same as asparagus and baby corn such as Kampaeng Saen Commercial and Swift.

### **1.3 Application of the Key Food Safety and Quality Requirements in Main Exports and the Role of the Main Private Sector Quality-Assurance Systems**

Due to the rising concern about food safety, quality, environment and human health in many countries with the intention of protecting producers/manufacturers and consumers in those countries, several conditions such as higher level standards/certifications are required for fresh fruit and vegetable imports to those countries. In fact, there are several standards related to food safety, which were established mostly by the countries in Continental Europe. The required standards and certifications are varied depending on the importers. The key food safety and quality standard applied to those buyers with some regulations exceeding those of the CODEX Code of Practices are;

- **EurepGAP**

EurepGAP is a global scheme for Good Agricultural Practice (GAP) at the farm level, providing a framework which defines essential elements for developing and implementing the best practice for the production of fruits and vegetables. Moreover, the standard provides guidelines for continuous improvement and development.

- **Nature's Choice by Tesco (UK).**

Nature's Choice is the standard established by Tesco, UK. It provides a code of practices which identifies key principles and practices for Tesco's producers and suppliers of fresh fruits and vegetables in order to ensure that the production and produce handling systems are sustainable and environmentally responsible.

- **UK Assured Produce**

Assured Produce provides a scheme to promote safe and environmentally responsible practices for the production of fruits and vegetables through the use of integrated crop management (ICM). Also, it provides specific protocols for the crops that growers must follow.

- **SQF 2000 (Safe Quality Food 2000)**

SQF 2000 provides a Code that specifies food safety and quality system requirements to be used for all sectors of the food industry. The objective is to supply food which is safe and which meets quality and legislative requirements. The standard applies the concepts and principles of Hazard Analysis and Critical Control Point (HACCP) build upon pre-requisite program such as Good Manufacturing Practice (GMP), Good Hygiene Practice (GHP) and Good Agricultural Practice (GAP).

- **BRC (British Retail Consortium)**

BRC developed Food Technical Standard to be used to evaluate manufacturers of retailers own brand food products.

**- Soil Association (Organic Certificate), UK**

The Soil Association developed high-level standards for organic production and processing in the world. The standards cover all aspects of agricultural food production and specify in detail what can and cannot be done, and what can and cannot be used. The standards not only meet the UK government's minimum requirements but also in many areas are higher. The organic symbol is used to show that the standards have been met. The Soil Association also works actively at national, European and international levels with the aim of achieving consistently high organic standards across all bodies and authorities.

Those key food safety and quality standards impact some of Thai exporters of fruits and vegetables in the way that they have to follow the requirements from importers in EU markets.

For other export markets in Asia such as Japan, Taiwan, China, there is no specific standard for food safety required except being QGAP certified by the Department of Agriculture (DOA). However, there is a specific standard/certification, "JAS OMIC", required for organic products exported to Japan.

**- JAS OMIC**

JAS or Japanese Agriculture Standard developed standards in order to ensure organic farm produce and its processed foods are marketed in Japan with the same standards as in other international countries. OMIC (Overseas Merchandise Inspection Co., Ltd.) is a certified body on JAS providing training courses which will give information and answers regarding organic laws, inspection services, testing and analysing services, consulting services, etc.

As for the Australian market, the country relies on SQF 2000 and Freshcare Code of Practice. The Freshcare Code of Practice is an industry owned standard, describing the practices required on farms to provide assurance that fresh fruits and vegetables produce is safe. The code also applies the concept of Hazard Analysis and Critical Control Point (HACCP) to identify where potential hazards may occur and which practices are needed to prevent and minimize hazards. Besides those two standards, some Australian importers also accept a QGAP certificate from Thailand.

**1.4 Main Points Overlap and are Different between EurepGAP Requirements and Requirements in Other Export Markets' Requirements**

To this point, EurepGAP requirements will be compared with only GAP requirements because other export markets such as Japan, Taiwan, China, etc. require only a GAP certificate from the Department of Agriculture (DOA). Mostly those markets are concerned more with plant diseases, insect problem and the level of pesticide residues on vegetables and fruits rather than specific standards/certifications. Those markets strongly require exporters to follow the import regulations which vary by importing countries.

The main points of difference between EurepGAP and QGAP can be summarized as follows (Table 6):

**Table 6:** Main points of difference between EurepGAP and QGAP

<b>Topic</b>	<b>National GAP</b>	<b>EurepGAP</b>
1. Details of the requirements	Have control points and compliance criteria as a general standard established by ACFS. The general standard covers good agricultural practices on	Have control points and compliance criteria for general fruits and vegetables

	food such as fruits, vegetables, grain, herbs, etc. Also there are GAP standard specified by each crop commodities established by the DOA which will be used together with the general standard. This standard is like a manual for growers to indicate how to..., which chemical agents are allowed or not allowed and so on. This is a kind of guidelines for growers in order to ensure good farm practices.	
2. Documentation	Does not emphasize documentation much. There are some specific levels of documents that need to be filled in but not with as much details as EurepGAP. Therefore, a tracking system is still not really effective as with EurepGAP	Emphasize record and documentation, therefore, a lot of documents need to be filled in. This is for the sake of effective tracking
3. Inspection and Audit	The inspection and auditing must be done by government officers. The services are free of charge.	The inspection and auditing can be done by private agencies. Service charges are very expensive.
4. Worker Welfare and environmental issues	No control points regarded those issues. They depend on labor, public health and environmental laws.	Have control points for both issues.

### **1.5 Specific Points Regarded as Unfair Competition**

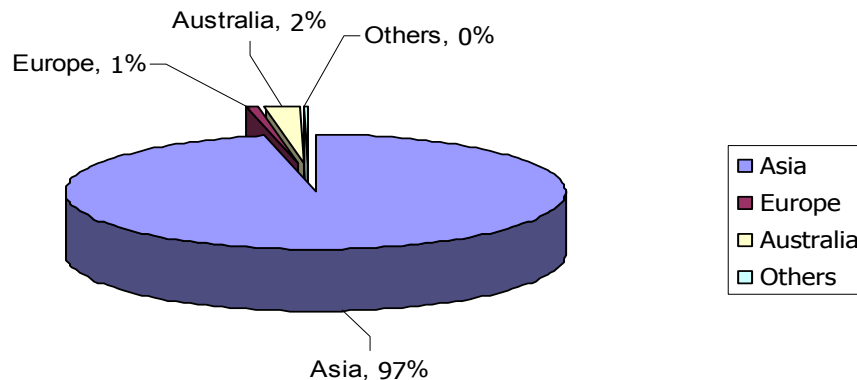
In general, national GAP and EurepGAP requirements are quite similar. EurepGAP standard is required for exporting to EU markets in order to ensure that imported food is safe and has a high quality. However, this can create some kind of barriers if the intention is to protect local producers and manufacturers or so called “non-tariff barrier”. The non-tariff barrier creates unfair competition as it makes the export more difficult. Requesting for several food safety and quality standards by different importers is a good example. There are various certification schemes available to satisfy import markets in terms of quality, safety and tracking. It has been found that exporters may have to be certified under several schemes such as EurepGAP, Nature’s Choice, EFSIS, SQF 2000, IFS, etc., in order to meet all of the buyers’ requirements. Some called it the “Certification Trap” as some of the buyers do not strongly support for EurepGAP.

### **1.6 Importance of EurepGAP Standard in Main Export Markets and Its Impact**

For international trade, especially for the export of fruits and vegetables to retail stores or supermarket in Europe, the EurepGAP standard is required. The standard is acceptable to leading retail groups worldwide but strongly required in UK. Manufacturers and exporters have to be certified by EurepGAP, a higher level standard, in order to ensure access to the markets.

As for asparagus exported from Thailand, the EurepGAP standard is not so important because the export volume to European Markets in 2004 represented only 1% of the total asparagus export. However, the standard is somewhat important to some exporters as it is worth the market access and price premiums. Japan is major market for asparagus from Thailand and does not require EurepGAP standard. However, EurepGAP

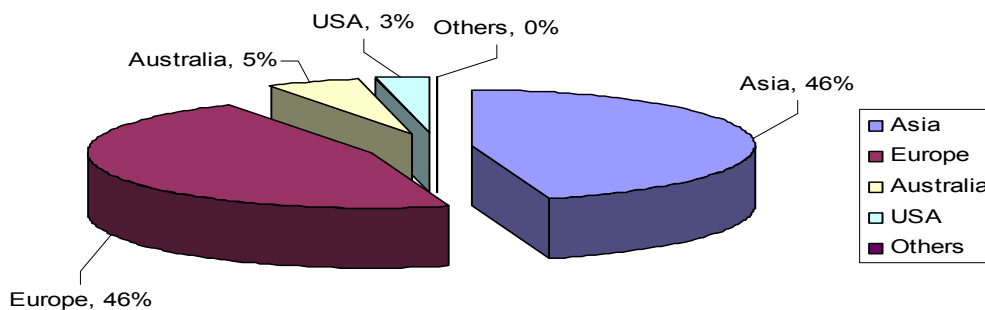
certification increases credibility and creates a competitive advantage for exporters who get certified.



**Figure 9: Share of Export Volume of Asparagus 2004**

Source: Department of Customs, 2005.

In case of baby corn, the EurepGAP standard is quite important due to high export volume to European Markets, representing 46% of total export volume of baby corn.



**Figure 10: Share of Export Volume of Baby Corn 2004**

Source: Department of Customs, 2005.

Exporters of asparagus and baby corn who get a EurepGAP certificate mostly are located in the west and central part of Thailand due to the proximity to source of supplies and to international airport in Bangkok.

### **1.7 Implications of EurepGAP for Exports of Fruits and Vegetables in Thailand**

The EurepGAP standard seems to have an impact on large producers who are also manufacturer-exporters rather than small producers as they can control a large portion of the supply chain. They have a strong influence on the growers and grower groups as they have financial resources, they hold the access to international markets and they have a

high volume of trade each year. Therefore, it is worthwhile for large producer-exporters to pay for the certification.

As for mangoes, EurepGAP certification is not essential because major export markets that generate revenue to the country are in Asia where only a GAP certification from DOA is required.

### **1.8 Certification costs**

Costs of certification is differ with the different certifications as shown below

**Table 7: Cost of Certifications**

<b>EurepGAP Certification</b>	<b>Cost</b>
Certification cost for EurepGAP	Approximately 500,000 Baht/ year
Farm management and other overhead costs	Approximately 500,000 Baht/ year
Total cost of EurepGAP certification	Around 1,000,000 Baht per year

*\*Remarks:* 1. The cost above is the first time cost, for subsequent certification the cost will be less.

2. Certification costs above cover plantation areas of 150 hectares (around 100-150 growers)

The cost for other certification such as BRC or IFS, certification cost per each is approximately 300,000 – 400,000 Baht per year (certification cost only).

### **1.9 Accredited National and International Certifiers**

The accredited national certifiers for GAP operating in Thailand by National Bureau of Agricultural Commodity and Food Standards (ACFS), government agencies and national certifying body for GAP is Department of Agriculture. Currently, there is no private agent (national and international) acting as a certifying body.

International certifiers for EurepGAP operating in Thailand are SKAL, P&H Agro Control Co (Control Union Thailand, Skal), SGS Thailand Co., Ltd and EFSIS Asia Pacific Ltd.

## **2. National experience with the development of "quality systems" for exported horticultural products**

### **2.1 National Producers that are Third-Country Certified**

Even though national the GAP has been implemented in Thailand, the standard is not internationally recognized. As a result, some exporters (large national producers) must pay foreign certifying bodies to come in and inspect sample areas in order to receive a higher level of certifications. Due to the limited number of international certifiers for some standard such as Nature's Choice by Tesco, IFS, etc., these exporters need to be certified by third countries. For Nature's Choice, the inspection will be done directly by the companies in the UK.

### **2.2 Objectives Needed for the Development of a National GAP Scheme: Producers benefit from it and Potential Benefits to the Environment and Society**

The objectives needed to be implemented in the national GAP schemes are;

- To bring the national GAP standard in line with the international buyers' requirements
- To increase economic, environmental and social sustainability.
- To develop or improve products (vegetables and fruits) quality to meet consumers' requirements. Quality in this sense means texture, color, taste, appearance, shelf life and significant quality is "Food Safety". The issue of food safety is an increasing concern nowadays. The food should be safe from all contamination hazards whether safe from residues or biological contamination.

The development of GAP schemes actually benefits to stakeholders along the supply chain from growers, collector-brokers, wholesalers, retailers, exporters and consumers. However, exporters are most likely to benefit in the way that they can expand the markets, increase trade volume, reduce costs of several certifications if national GAP standard is accepted worldwide.

Besides benefits to exporters, the development of GAP program creates potential benefits to the environment in the way that agro-chemicals usage is reduced. Thus, there is no pollution to the environment and soil quality can be improved. To society as a whole, consumers get safe products due to absence of chemical/pesticide residues on the food and their standard of living is improved.

### **2.3 National Quality-Assurance Systems or Initiatives That Have Been Developed and Stakeholders that Drive those Quality-Assurance Systems**

Even if a national GAP is already implemented, the program is still continuously developed whether with regard to upgrading agricultural practices on farm level or even improving food safety at each level along the supply chain from production to distribution. The government also promotes the GAP program and tries to encourage farmers to be registered under the DOA Food Safety Program for GAP certification. During 2004-2008, the government aims to have 325,000 farms registered under this program with at least 145,000 farms required to be certified. Exporters are the main driving force for those developments. GMP and HACCP, the industry standards for packinghouses and manufacturers are in the process of developing.

### **2.4 Impact of the Development on Market Access and National Agricultural Development**

The development of national quality-assurance systems impacts not only market access but also to national agricultural development. To international market access, being certified by those quality assurance systems provides more chance to expand export markets/increase foreign trade. To domestic market access, growers or traders have more chance to expand markets. Instead of possibly selling at only the local market, it will be possible for them to sell their products in large supermarkets and wholesale/retail stores.

To national agricultural development, quality assurance systems help improving livelihoods and increasing standard level of farm practices.

## **2.5 Impediments regarding the implementation of national GAP**

### **1. Growers**

#### *Lack of knowledge/ and low education*

Most of growers have a low education, they lack knowledge on what good agricultural practices should be. Some don't understand why the GAP is needed and resist changing the way they do farming because they perceive that changing their farm practices is complicated, especially with regard to documentation. Also some farm workers lack knowledge of chemical usage and use of improper chemical agents on the crops or use chemicals in an improper quantity.

#### *Understanding GAP requirements*

Due to the lack of knowledge and insufficient information about the GAP Program, some growers and farm workers may have problems understanding GAP requirements and that leads to ineffective GAP implementation.

#### *Maintenance of record and tracking*

Keeping a record of farm procedures, chemical usage and etc. is important for the GAP Program. Careless and incomplete record keeping lead to the failure of a tracking system.

#### *Low motivation/incentive to implement GAP*

Prices for both GAP and Non-GAP products being perceived by some growers as not being significantly different creates a low motivation to implement GAP among those people.

#### *Unhygienic practices in produce and processed food*

The contamination of food from unhygienic practices in both pre- and post-harvest is one of the challenges to promoting GAP in fruits and vegetables production.

#### *No direct access to the markets*

Some growers still have little concern for food safety because they have no direct access to the markets and never get direct requests from customers concerning safe food production. As a result, their farm practices do not follow GAP requirements strictly.

### **2. Government Agencies**

#### *Insufficient public relations about the GAP Program*

Insufficient public relations about the GAP Program is also one of the impediments that causes ineffective implementation because growers do not understand the real purposes/objectives and the concept of the program.

#### *Promotion/training provided by several parties without coordination*

According to government policy on food safety, Good Agricultural Practice (GAP) has been implemented. There are several training programs developed by government agencies and institutions such as the Department of Agriculture (DOA), the Department of Agricultural Extension (DOAE), Universities, etc. This leads to confusion among participants as to which training program is preferred.

### **3. Exporters**

#### *A Limited number of large export companies*

The facts show that grower networks managed by large producer-exporters produce an effective implementation of EurepGAP standard at the same time with the effective implementation of national GAP standard. Unfortunately, there is still a

limited number of large producer-exporters who have power to create effective implementation.

#### **4. General Issues**

##### *Small holdings structure and a small number of effective groups of growers*

Most of producers have small-scale farms and there is a small number of effective groups of growers. These makes the segment fragmented and creates some difficulties for the effective implementation of GAP.

##### *Insufficient awareness about environment and social impact*

Currently, there is insufficient awareness about the fact that agricultural practices impact environment, climate, worker welfare and food safety.

### **3. Factors that need to be reflected in a national protocol on Good Agricultural Practice**

#### **A. General Issues of Standard Development**

##### **A.1 Stakeholders involved in the Discussions on a National GAP and the Role of EurepGAP National Technical Working Group**

Government agencies should involve all stakeholders along the supply chain in the discussion. Government agencies and exporters could play a major role in national standard development. Growers, packers and collector-brokers could play a minor role in the development. Currently, there is no EurepGAP National Technical Working Group involved in the process of development. However, EurepGAP may play a role in the near future.

##### **A.2 Informed Decision with Regard to 2 Options of EurepGAP**

To develop a national standard equivalent to international standards, the country is now in the process of developing national standards by benchmarking against EurepGAP.

##### **A.3 Legal Owner of National Standard and their Intention to create Standards and Consequences with regard to the Constellation of Power in the Supply Chain**

Once a national standard is established, government agencies should be the legal owners of this standard. It could be the National Bureau of Agricultural Commodity and Food Standards (ACFS) who are now the accrediting body for GAP or it can be assigned to other government agencies in the future. Government agencies are well suited to take the role of legal owner because they are recognized by the CODEX committee as the representatives of the country. The government sector also act like a non-profit organization that can receive the cooperation from every exporter. This can avoid the problem of conflict of interests in the supply chain.

#### **Agricultural Factors Specific to the National Situation Need to be Reflected in a National GAP**

##### **- Tracking of Agro-Chemical Usage**

Lack of tracking for agro-chemical usage is one factor that needs to be reflected in a national GAP. Even if legally imported chemical agents are registered once they are imported, there is no record and they cannot be traced back after they were distributed to local shops around the country. Those chemicals can be misused by mixing them with other chemicals, which sometimes could create chemical hazards. Thus, tracking systems of dangerous agro-chemicals should be established in order to track where the chemical agents are, how they are used and to whom they were sold.

##### **- High Chemical Usage**

High chemical usage in some crops reduces competitiveness of fruits and vegetables export from Thailand and also creates a low potential for export. As for the case of mangoes, it has been found that there are chemical residues exceeding the Maximum Residual Limit (MRL). In 2004, out of 2,310 samples, 10.74% of samples had residues over MRL limit (Plant Quarantine, DOA, 2005). As a result, mangoes imported to Japan is quarantined and strictly inspected for residues. This is a critical issue that impacts export of agricultural products from Thailand.

All the factors that need to be reflected in a national protocol on GAP or any standards or policy that will be established, should be outlined to address issues encountered by the fresh fruits and vegetables industry.

#### **B. Reflection of Specific Factors**

##### **B.1 Development Priorities Need to be Reflected in a National GAP**

To increase competitiveness in the agricultural sector, the development of a national GAP is necessary.

- *Expand the scope of the GAP code to cover not only chemical contamination but also biological and physical contamination*

Currently, the GAP code seems to emphasize chemical hazards rather than other components while other higher level standard underline chemical, biological and physical contamination. Therefore, the scope of the GAP code of practices should cover all 3 components in order to increase the reliability of the program.

- *Develop quality management systems*

In order to maintain high product quality, quality management systems from the first stage of production to consumers or the so-called “from farm to table” need to be developed. At the farm level, growers must follow the advice contained in the crop specific protocols. By producing crops in accordance with the GAP standard or higher level standards on the one hand, Thailand can confidently sell the products to markets, on the other hand they can maintain consumers’ confidence in the safety of the produce they eat.

- *Enhancing inspection and certification systems*

Enhancing the inspection and certification systems especially laboratory services is another development necessary. Currently, there are still not enough existing laboratories to provide service and serve customer needs. This causes extended delays in getting the results of analysis. Therefore, increasing number of laboratories or outsourcing some part of the laboratory services to the private sector can be a solution that will improve inspection procedures.

- *Developing and improving manpower capabilities*

In order to achieve those developments above, developing and improving manpower capabilities is the key driver. Manpower in this sense means all stakeholders i.e. growers, collector-brokers, traders, wholesalers, retailers, and manufacturer-exporters and government staff such as GAP advisors, GAP inspectors and auditors. With regard to stakeholders, education and training on food safety, how GAP helps create food safety, hygienic practices, etc. is needed. On the government’s side, GAP advisors, GAP inspectors and auditors should also be trained and should maintain the same standard for each responsibility.

## ***B.2 How National Factors and Development Priorities can be woven into a National GAP***

National factors and development priorities and how those can be woven into a national GAP can be summarized as in the below:

**Table 8:**

<b>National Factors</b>	<b>Development Priorities</b>	<b>How can those be woven into a national GAP?</b>
1. Lack of tracking of agro-chemical usage	1. Expand the scope of the GAP code to cover not only chemical contamination but also biological and physical contamination	Address the concerns related to several kinds of contamination (biological, chemical and physical contamination) related to food safety issues.
2. High chemical usage	2. Quality management systems “from farm to table”	<i>At the farm level:</i> Follow the advice contained in the crop specific protocols. Producing crops in accordance with standards and best practice. <i>At other levels:</i>

		Emphasize hygienic practices to prevent or minimize contamination hazards.
	3. Enhance the inspection and certification systems	<i>Inspection:</i> Inspector training, increase number of laboratories to provide faster services or outsource some parts of the laboratory service to the private sector. <i>Certification:</i> Empower the Office of Agricultural Research and Development in each region to approve certification. Outsource certification bodies to the private sector.
	4. Developing and improving manpower capabilities	<i>Stakeholders: Growers</i> Concepts and how to implement GAP, hygienic practices and food safety. <i>Stakeholders: Others</i> Food safety, how GAP helps creating food safety and hygienic practices <i>Government staff: Advisors, Inspectors, Auditors</i> Training

### ***B.3 EurepGAP Requirements that are Misplaced in the Context of National Circumstances and Development Priorities***

According to EurepGAP requirements, in general the requirements are possible to meet . However, there are impediments to meeting some requirements such lack of laboratories in Thailand or even in the UK that can provide services of analysing the chemical (insecticide) called “Confidor”. The requirement for the inspection of this kind of chemical agent seems to be misplaced in national circumstances. Moreover, the impact on the environment seems to be difficult to measure.

### ***B.4 Gradual Adaptive GAP System (A Must, A Should, A May)***

In order to have a smooth transition for the adaptation of GAP system, public relations on GAP program, and educating and training growers about concepts and principles of GAP is the must. Next, we should educate and train growers for GAP implementation in practice by inspecting current farming practices and giving advice about what is good and what should be improved in order to comply with advice contained in specific crop protocols. What the government might do is involve other institutions such as universities, research centers, the private sector in the stage of the adaptation of GAP.

GAP Western Cluster is one of the success cases of a strong cooperation among several parties to promote GAP. The cluster was developed by the Kenan Institute in coordination with Kasetsart University, Kamphaengsaen Campus, stakeholders in the supply chain such as growers, grower groups, chemical suppliers, exporters, and representatives from NESDB and ACFS. The cluster aims to produce good quality and “safe” vegetables for export and domestic markets and increase the competitiveness of the products. The cluster has succeeded in promoting better Good Agricultural Practices (GAP) and building up a high commitment of growers for the continual improving of farming practices.

#### **4. Specific concerns and requirements of smallholders' and outgrowers' networks**

##### ***4.1 Involvement of Smallholders and Outgrowers in a National GAP***

Good Agricultural Practices(GAP) is the quality management system for agricultural products at the farm level, the starting point of the supply chain. At this level, smallholders/small growers and outgrowers are involved in GAP, first by recognizing the policy from the government about producing safe and good quality food (fruits and vegetable) which the national aim of increasing competitiveness of agricultural products from Thailand in the international arena. Food should be safe from farm level, thus the GAP Program has been implemented. Participation in the program is voluntary. Smallholders and outgrowers must register to become members of the program and then they will be trained about Good Agricultural Practice (GAP) for specific crops conducted by Department of Agriculture. Overall, growers become involved in GAP by implementing the GAP code of practices to their farm. They must follow the advice according to crop-specific protocols. Also, they should always inspect their farm practices to ensure that the produce meets the requirements.

At present, GAP implementation is more or less effective depending on the growers. There are two types of growers. The first are growers who supply their produces to export markets and the other is the growers who supply their produce to domestic market. GAP implementation is more effective with the first type of grower because they are forced by exporters to ensure the safety and quality produces. As for the latter type, some growers do not care about the GAP program because they perceive that the program does not make any differences to them and the domestic market is not really concerned with food safety like international markets are.

According to the aim of producing safe and good quality food, working groups from Department of Export Promotions (DOAE) are now working on the assessment of production areas, to know the main products in each area and the risks created by improper farming practices. The growers and community to some extent are involved in this project as the key informants. The participants support the working group in the way that they provide necessary information, accept the assessment criteria and accept the results of assessment. Even though the cooperative is indirectly linked to the national GAP, it provides a base line information about the critical points that should be solved for the sake of development a national GAP in the near future.

Growers are involved in the discussion on GAP arranged by Department of Agriculture (DOA). Some educated growers have had the opportunity to become involved in the workshop/seminar about GAP arranged by international organizations such as FAO in coordination with the government sector. Productive outgrower networks in some crops such as asparagus, baby corn, okra, and chili are also members of the working group on GAP clusters, for example in western part of Thailand.

##### ***4.2 Limitations of the Private Sector Promotion of Small Agricultural Producers and the Risk that Small Producers will become Dependent Upon Powerful Buyers for Access to Export Markets***

The private sector is also involved by supporting smallholders and outgrowers with financial services and providing some advice. However, the private sector also has limitations on knowledge transfer due to insufficient manpower.

Because most of small producers have limited financial resources, insufficient knowledge of agricultural practices, production planning, etc. and have no direct access to the market, they have to rely on manufacturers-exporters for those supporting services. As a result, they become dependent upon those buyers.

#### ***4.3 Specific concerns or requirements of small producers should be addressed***

Pricing for both GAP and Non-GAP products sold in Thailand being the same creates a low incentive for some small growers to implement a GAP program. Domestic trader-middleman are concerned about price rather than GAP. Therefore, the price of GAP products sold in the domestic markets should be different from Non-GAP products in order to increase motivation to implement GAP.

#### ***4.4 Co-Operative Arrangements among Small Producers could be forged***

Due to the smallholdings structure and the small number of groups of growers, quality products from each farm is inconsistent especially food safety is the key component that defines good quality. Hence, cooperation and collaboration among growers such as forming groups should be promoted. In the groups, there would be a kind of monitoring member to oversee the farming practices and product quality. Strong growers' groups that can effectively implement GAP can increase the bargaining power to manufacturers and exporters in terms of increasing the farm gate price.

The healthy function of groups managed by packinghouses, manufacturer-exporters in the west, however, is one success example of asparagus as it creates mutual benefits or a win-win situation for growers and manufacturer-exporters. Growers on the one hand get the guaranteed high price all year round, manufacturer-exporters on the other hand get high quality and safety produces with guaranteed supplies. Functioning groups can therefore maintain their competitive advantage by ensuring continuous compliance with EurepGAP requirements (as agricultural practices in this region mostly follow EurepGAP requirements, a higher level standard of GAP) or GAP requirements.

#### ***4.5 EurepGAP Requirements that are Particularly Difficult to Meet for Smallholders or Outgrowers and Ways to Resolve These Difficulties***

As the EurepGAP code of practices has been implemented for some crop commodities like asparagus and baby corn, some requirements seem to be difficult for grower-outgrowers to meet. Post-harvest sanitation is one thing that is difficult to control. The lack of good sanitation for post-harvest handling can cause physical contamination such as contamination from soil if harvested crops were laid on the ground instead of being placed in clean storage areas. Calibration of agricultural equipment is also a problem especially the nozzle of the sprayer is difficult to control. Reuse of chemical product containers is another issue that currently occurs. According to EurepGAP requirements chemical product containers must be kept secure prior to disposal, however, some growers reuse those containers.

These difficulties can be solved by periodical training on those issues, self-monitoring and internal audit among group members.

#### ***4.6 Alternative Markets or Market Niches for Products that can not meet GAP Requirements***

For some growers who intend to supply export market but for some reason can not meet GAP requirements, they still have opportunities to export to non-GAP required markets such as lower level market in China, Taiwan, Malaysia, etc. Those alternative markets seem to be concerned more with price rather than quality and food safety.

## 5. Importance of extension services for meeting the requirements of high precision agriculture

### 5.1 Support Services Currently Being Provided and Parties Involved

The provision of existing support services was explored with stakeholders and key informants in interviews and discussions.

Below is the summary of existing support services:

**Table 9: Existing Services – Sufficient/Insufficient**

Stakeholders	Services	Services Providers	Sufficient/ Insufficient
Growers	- Input and Farming System Advice	DOAE, Office of Agricultural Research and Development, Several companies	Insufficient - limit resources (advisory services)
	- Testing, Inspection, Certification	Technical One-Stop Service, DOA, Exporters	Insufficient – limit resources (inspectors and laboratories)
Collector-Brokers	- Advisory services on hygienic practices during grading, post-harvest handling, etc.	Office of Agricultural Research and Development, Provincial Agricultural Extension Office	Insufficient - limit resources (advisory services)
Packing House, Manufacturer-Exporters	- Testing, Inspection, Certification	Foreign Certified Bodies in Thailand, Foreign Consulting Agencies; Internal	Insufficient - limit resources (inspectors and laboratories)

#### *Growers*

Current available input and farming system knowledge is considered insufficient. Inappropriate usage of input leading to high chemical residues in some crop, mangoes for example, indicates that the advisory service is still insufficient. Growers would like more knowledge about proper farming practices in order to meet customer requirements for high quality and safety products.

As there is a rising concern about food safety, testing for pesticide residues is required in order to ensure purchase by exporters. Currently, testing services for residues is insufficient and takes a long time to get results as there is a limited number of laboratories. Although, there is a functional tracking in place to comply with GAP requirements, there is still the possibility that unqualified products reaching the market due to the fact that the testing of the products is done randomly. This situation could damage the industry as a whole.

#### *Collectors/ Brokers*

There are advisory services in place for hygienic practices and post-harvest handling at collecting points. However, some collectors still have problems with sanitation at collecting points which could lead to contamination. Thus, supporting services regarding this issue are still required especially as follow up after giving advice.

#### *Packing House, Manufacturers/ Exporters*

There is wide range of testing, certification and inspection services. Most of these are international certification programs. The packinghouse may rely on inspection and certification services of industry standards such as GMP and HACCP provided by foreign certified bodies operating in Thailand. As for manufacturer-exporters, they have to be

certified under several standard schemes in order to capture the markets. This creates a burden administratively and financially. Even though the costs are high it is considered acceptable to ensure market access.

## **5.2 Support Services are Required for Each Type of Producers**

### *Growers*

Regarding the problem of pesticide residues which sometime result in rejected products and loss of credibility of agricultural products from Thailand, several supporting services are needed:

- Information, manuals and training regarded optimized usage of agricultural input and farming system.
- Knowledge transfer for the best practice on optimal farming systems
- Lessons learned from other chemical free products.
- Extension service and follow up

As for the testing services which currently are insufficient, supporting services required are:

- An increased number of laboratory is the best, or even outsourcing to the private sector in order to provide faster services
- Build up a solid reputation on a tracking system

Potential partners can be growers, growers groups, DOA, universities, consulting agencies, private laboratories.

### *Collector-Brokers*

With regard to post-harvest handling and hygiene problems, the services required are:

- Information, manual and training regarding Good Hygienic Practices (GHP) and proper post-harvest handling
- Extension service and follow up

Potential partners can be DOA, universities, exporters, consulting agencies

### *Packing Houses, Manufacturer-Exporters*

A significant amount of money is spent in order to receive higher levels of certification from foreign certified bodies both operating in Thailand and from abroad. It is necessary to streamline GAP certification to meet international buyer requirements.

Potential partners can be certifying bodies, government agencies involved in setting up regulations, retailers, exporters, grower groups

## **5.3 Optimum Use of National Expertise on Subjects like IPM, Integrated Soil Fertility Management and Integrated Water Management**

There are some national program which support the GAP such as farmers' schools, integrated pest management, reduction of agro-chemical usage programs. These supporting programs are operated by both government and private sectors.

## **5.4 Providers of the Required Extension Services**

Providers of those required extension services could be from both the public and private sectors and stakeholders along the supply chain i.e. DOA, DOAE, universities, research center, consulting agencies, certified body, private laboratories, and manufacturer-exporters.



4. Quality Management
5. Pest Diseases Free
6. Harvesting and Post-Harvest Handling
7. Storage and Products transfer
8. Record Keeping and Documentation

With regard to the development of inspection and certification system, there are further needs to be fulfilled:

1. In terms of advisor and inspector training
  - Set up standard curriculums for advisors and inspectors
  - Standard curriculums for advisors and inspectors shall be provided to internal staff from DOA and external such as independent/private advisors and inspectors as well.
  - Provide training and information to exporter on WTO rules
2. In term of regulations and procedures
  - Outsourcing advisor and inspector services such as independent advisors/inspectors or advisors/inspectors from the private sector
  - Establishing the standard for advisors and inspectors
  - Setting up a monitoring system for private/independent advisors and inspectors
  - Establish common inspection checklists
  - Annual work plan for inspection
  - Coordinate food inspection across ministries

#### ***6.2 Possibility of Group Certification (Option 2) for Smallholders and Specific Requirements in EurepGAP's General Regulations that Impede the Feasibility of Option 2 in Developing Countries***

According to EurepGAP standards, currently manufacturer-exporters took EurepGAP option 2: group certification. The inspection and selection is made by taking random samples at least the square root of the total number of EurepGAP registered growers within the grower group managed by manufacturer-exporters. The requirements themselves in EurepGAP's general regulations do not impede the possibilities of option 2 in developing countries, but due to some internal factors this option is not viable for some parties in each country. In case of Thailand, this option is still not a viable one for small growers as they cannot afford the high cost of certification (around 1 million Baht a year) and also they do not have enough power to gain direct access to foreign markets like manufacturers and exporters.

## **7. Governmental role in national GAP development and implementation**

### ***7.1 Role of the National Agro-Food Sector in Defining and Implementing National GAP Programs***

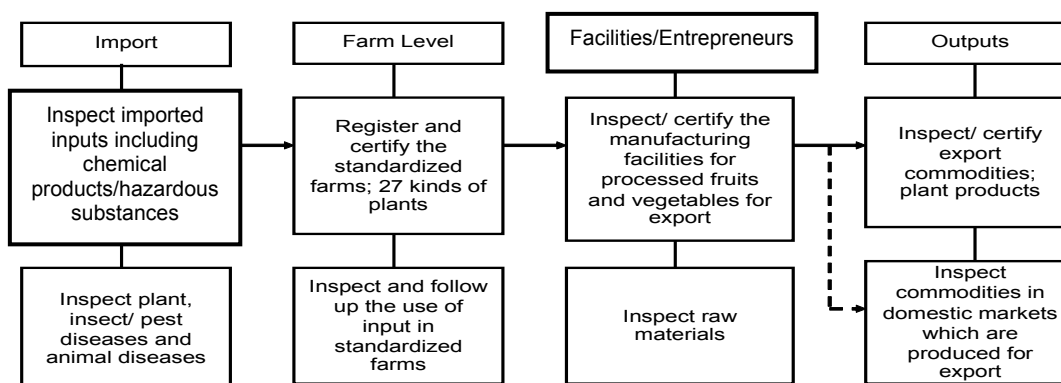
Demands from the consumers for safety and high quality food with an environmental concern and strict regulations on pesticide residues are the key driving forces for the implementation of GAP. As for fresh fruits and vegetables that are mainly destined for export markets, asparagus and baby corn, for instance, exporters are quite powerful to push grower groups to follow the guidelines and code of practices of Good Agricultural Practices (GAP) or EurepGAP, a higher level standard. The relationship between those two parties is quite good because they rely on each other. Grower groups are highly committed to the requirements from exporters as exporters provide supporting services to the grower groups such as giving advice on proper farm practices, providing financial support, agricultural input support, and importantly providing market access for their products. Exporters also receive good cooperation from the government in terms of promoting the GAP program. Therefore, the implementation of GAP in these groups of people is quite effective as they consider it one advantage that can keep them competitive in the market.

For the intermediaries and retailers, the level of GAP implementation can be separated into two cases. First, fresh fruits and vegetables are supplied to retail stores and chain supermarket/hypermarkets. In this case, retailers have a strong impact on the intermediaries in that they demand safety food, thus GAP certification may be needed in order to ensure food safety. The Intermediaries' role is to find GAP products and they also have power to push growers to follow GAP practices. Therefore, the implementation of GAP is more or less effective. The second case is fresh fruits and vegetables that are supplied to local retailers. In this case, GAP has no impact because retailers do not care whether the products have a GAP certification or not as consumers in this market are not concern about food safety, only cheaper price matter.

### ***7.2 Governmental Interest In and Activities Related to Developing a National GAP***

There are several activities for the development of national GAP that the government is involved in

- The year 2004 was declared the “Year of Food Safety” (Policy from government)
- Road Map of Food Safety established by ACFS. In this road map, DOA is also involved in different levels as shown in chart below:



**Figure 12: Activities Involved by DOA in Different Levels**

Source: Road Map of Food Safety, ACFS 2005

- Several workshops on GAP and food safety involving all stakeholders in the supply chain
- Workshops/seminars on GAP and food safety arranged by FAO and other international organizations in coordination with DOA
- Allocate budget to universities to support the GAP program such as providing advisory services about agricultural inputs and farming systems.

### **7.3 Role the Government Should Play in Developing and Implementing a National GAP**

For developing and implementing a national GAP, the government could take role of

- Making policy such as policy on food safety which aims to improve quality and safety in order to meet customers' requirements and increase competitiveness of agricultural products from Thailand.
- Streamlining the national GAP standard to meet domestic and international buyer requirements.
- Providing framework and guidelines for GAP
- Clarifying the role and responsibilities for each government agency
- Clarifying the role of the private sector (laboratories, third party certification, consultants, training research, food producer associations)
- Assigning potential parties at the implementation level of GAP
- Setting up a monitoring system/Follow Up Plan

### **7.4 The Market Recognition of Government-Run or Supported Quality-Assurance Schemes and The Advantage of a Government-Sponsored GAP Standard versus Private GAP standards**

At present, a national GAP certification issued by Department of Agriculture (DOA) is not internationally recognized. GAP certification is accepted by some countries, mostly in Asia such as Japan, Taiwan, China, etc. As for European and Australian markets, it depends on the buyers, if fresh fruits and vegetables are exported to low-end markets in those countries, GAP certification is acceptable. GAP certification seems to be accepted domestically.

The GAP standard sponsored by the government, however, has some advantages in that there is no certification cost for the member of the GAP program or nor does any non-member have to pay, the cost is low compared to GAP sponsored by the Private sector, EurepGAP for example. Moreover, QGAP certification is widely recognized in domestic markets and in some countries in Asia as mentioned earlier.

The advantage of Private GAP standards, EurepGAP for instance is that the standard is recognized worldwide and is accepted in international markets due to a higher level standard.

#### **7.5 Supportive Policies That Could be Put in Place**

Supporting policies that could be put in place are;

- Implement a sustainable Agriculture Policy
- Develop human resources in order to be ready for higher level standard
- Improve tracking system in order to build a solid reputation for quality and food safety
- Coordinate with major importers such as importers in European markets on the standard requirements.
- Encourage collaboration among stakeholders along the supply chain from agricultural input providers, growers, collectors, traders, wholesalers, retailers and exporters for benefits of a whole country.

#### **7.6 Sub-Regional Initiatives for the Development of a Regional GAP**

Currently, there is an initiative for the development of ASEAN GAP. ASEAN GAP is still in the early stage. This initiative is mainly supported by government agencies in Australia. Member of ASEAN GAP consists of Australia, Thailand, Malaysia, Philippines, Singapore, Indonesia and Brunei.

## **8. Supportive role of international organizations, in particular UNCTAD and FAO**

### **8.1 Role of UNCTAD and FAO**

FAO plays a supportive role in several activities related to GAP in Thailand such as

- Providing a neutral platform for intergovernmental, private sector and civil society dialogue on the development of GAP.
- Implementing several FAO projects and studies on fruits and vegetables relevant to GAP in Thailand, i.e. “Strengthening Compliance with the SPS Requirements for Expanded Exports of Fresh and Processed Fruits and Vegetables”, “Vegetable IPM Programme”, “Improving the quality and safety of fresh fruit and vegetables: a practical approach”, and “Regional study on the identification of food quality and safety issues in the fresh produce production and marketing chain in Asia”.
- Holding joint workshops with government agencies in Thailand to review the current situation and propose the next steps
- Drawing lessons from other countries
- Setting up a database and website providing information on GAP studies concerning incentives, costs, benefits, etc.
- Writing a training manual and setting up a database on good practices for safety and quality of fresh fruits and vegetables
- At the country and regional level, FAO has become involved in policy and technical assistance by helping review and define GAP programs, facilitate agreement on GAP between public/private stakeholders and capacity building trainer of trainers and farmers and helping farmers link to markets

UNCTAD is more or less involved in some activities in Thailand

- Playing a supporting role on the joint project “Capacity Building in Trade and Environment” with four United Nations Regional Commissions, the Economic Commission for Africa (ECA), the Economic Commission for Latin America and the Caribbean (ECLAC), the Economic and Social Commission for Western Asia (ESCWA) and the Economic and Social Commission for Asia and the Pacific (ESCAP)
- Entering into governmental discussions about the private sector requirements and addressing multidimensional aspects of new requirements in export markets
- Conducting country – case studies in Asia on food quality requirements and market access for horticultural products
- Playing a supporting role in FAO – Thailand Workshop on GAP for Fresh Fruits and Vegetables

### **8.2 Specific Activities are Proposed**

Proposed Activities for International Organizations

- Bring in experts in each area for knowledge transfer about appropriate farming practices and other issues related to GAP.
- Provide assistance in bringing national GAP standard in line with the international buyers’ requirements.
- Pool the GAP programs which vary from country to country and set up the minimal standards for international GAP which can be used by all UN member countries.
- Implement the International GAP program step by step to allow the farmers in the developing countries to improve their production systems to meet the requirements.
- Use the same format for International GAP training courses for farmers and all stakeholders.
- Conduct certification and inspection by using non-profit agencies.

### **8.3 EurepGAP-Related Activities which are Supported by Other Organizations and Bilateral Donors**

Several activities related to EurepGAP which are supported by other organizations and bilateral donors consist of

- The project “Strengthening Farmers’ IPM in Pesticide Intensive Areas”. The project is a cooperation between the governments of Thailand and Denmark. The objective of the project is to promote good agricultural practices in order to improve the environment and the safety of farmers and to protect consumers from the hazardous use of pesticide.
- The program provided by JICA aims to reduce agro-chemical usage
- The project on Food Safety conducted by Ministry of Public Health

### **8.4 COLEACP Harmonized Framework in Consideration of National Codes of Good Practice**

For the development of national codes of good practice at the present, the EurepGAP code of practices are taken into consideration. According to the discussion with ACFS officers, coordination of the framework by COLEACP is still not taken into consideration at moment.

## **Annexes**

- Lists of Interviews
- References

### List of Interviews

<b>Date</b>	<b>Name</b>	<b>Company/ Organization</b>	<b>Interviewers</b>
27/09/05	Mr. Nikorn Bandit	Sweet Corn Collector	Usakorn
27/09/05	Mr. Adul Sitthiwongse	Office of Royal Project	Usakorn
30/09/05	Mrs. Prisna Hanwiryapan	Office of Agricultural Research and Development Area 1	Dr. Vicha and Usakorn
3/10/05	Mr. Somboon Janbunmee	Technical One Stop Service, Department of Agriculture (DOA)	Dr. Vicha and Usakorn
4/10/05	Mr. Soonthorn Sritawee	River Kwai International Food Industry Co., Ltd.	Dr. Vicha and Usakorn
4/10/05	Mr. Trinead Rodpothong	Asparagus Farmer Group/ Community	Dr. Vicha and Usakorn
4/10/05	Mr. Paichayon Uathaveekul	Swift Co., Ltd.	Dr. Vicha and Usakorn
5/10/05	Dr. Chuanpit Arunrangsitkul	GAP Western Cluster, Kasetsart University Kamphaeng Saen Campus	Dr. Vicha and Usakorn
5/10/05	Dr. Roongnapa Kurpraditskul	Environmental Science Laboratory, Rad Institute, Kasetsart University Kamphaeng Saen Campus	Dr. Vicha and Usakorn
5/10/05	Ms. Junnipa Srichaiwan	National Bureau of Agricultural Commodity and Food Standards	Dr. Vicha and Usakorn
5/10/05	Ms. Suttinee Intarakamhaeng	National Bureau of Agricultural Commodity and Food Standards	Dr. Vicha and Usakorn
5/10/05	Ms. Wantana Buasup	Bureau of Agricultural Commodities Promotion and Management Development, Department of Agricultural Extension	Usakorn
6/10/05	Mr. Kieattisak Tangcharoen	Chareon Peerawat Farm	Dr. Vicha and Usakorn
31/10/05	Mr. Sayan Boonying	Head of Mango Grower Group, Pichit Province	Usakorn
31/10/05	Mr. Silpchai Tagoontip	Head of Mango Grower Group, Pitsanulok Province	Usakorn

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