



Asia-Pacific
Economic Cooperation

**PROCEEDINGS OF THE CAPACITY BUILDING
SEMINAR
ON GOOD AGRICULTURAL PRACTICES FOR APEC
DEVELOPING ECONOMIES**

**Committee on Trade and Investment (CTI)/ Agricultural
Technical Cooperation Working Group (ATCWG)
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LIST OF ACRONYMS USED

APEC	Asia-Pacific Economic Cooperation
AO	Administrative Order
ASEAN	Association of Southeast Asian Nations
ASEAN GAP	Association of Southeast Asian Nations Good Agricultural Practices
AVA	Agriculture and Veterinary Authority
BAFPS	Bureau of Agriculture and Fisheries Product Standards
CPH	College of Public Health
DA	Department of Agriculture
DPI	Department of Primary Industries
DPIF	Department of Primary Industries and Fisheries
EUREPGAP	Euro-Retailer Producer Working Group and Good Agricultural Practices
FAO GAP	Food and Agriculture Organization Good Agricultural Practices
FDA GAP	Food and Drug Administration Good Agricultural Practices
FDF	Fruit Development Foundation
GAP	Good Agricultural Practices
GAP VF	Good Agricultural Practices for Vegetable Farming
GMO	Genetically Modified Organisms
HACCP	Hazard Analysis Critical Control Points
IndonGAP	Indonesian Good Agricultural Practices
IRM	Insect Resistance Management
ISO	International Standards Organization
MRL	Maximum Residue Level
NCPC	National Crop Protection Center
QA	Quality Assurance
SALM	Malaysian Farm Certification Scheme for GAP Standard
SQF	Safe Quality Food
UP	University of the Philippines
US FDA	United States Food and Drug Administration
WTO	World Trade Organization

Introduction

1. A Seminar on Capacity Building on Good Agricultural Practices (GAP) for Asia-Pacific Economic Cooperation (APEC) Developing Countries was organized by the Bureau of Agriculture and Fisheries Product Standards (BAFPS), Department of Agriculture, Philippines on 19-21 September 2006 as part of the approved project number ATC 05/2005T rev1.
2. There were twenty participants from nine (9) countries and five (5) observer organizations. Representatives from People's Democratic Republic (PDR) of China, Chile, Indonesia, Malaysia, Mexico, the Philippines, Thailand and Vietnam attended the seminar. Experts from the Department of Primary Industries-Australia, Agriculture and Veterinary Authority (AVA)-Singapore, QA Plus-Malaysia and Exponent-United States of America (USA) were the resource speakers during the Seminar.
3. The project overseer was Director Gilberto F. Layese of the BAFPS. Dr Leonila M. Varca of the National Crop Protection Center (NCPC) - University of the Philippines at Los Banos (UPLB) and Dr Alice Alma C. Bungay of the College of Public Health (CPH)-University of the Philippines Manila (UPM) served as consultants for this project.
4. The list of the participants, resource speakers and project team can be found at **Annex 1** of this document.
5. A copy of the program is attached as **Annex 2**.

Opening Ceremony

6. Honorable Domingo F. Panganiban, Secretary of the Department of Agriculture (DA), Philippines formally welcomed the delegates and opened the ceremony. In his speech, Secretary Panganiban laid out the perspectives for the capacity building of APEC, emphasizing the need for GAP in promoting free trade by enabling countries to produce goods with the same standards.
7. The Secretary cited that the implementation of the GAP program is one of the core functions of the DA and that the Philippines is continually building its capacity by training inspectors to be knowledgeable in the GAP system.
8. The full text of the Welcome Speech of Secretary Panganiban is at **Annex 3**.

Presentation and Plenary

Session 1

Global and Regional Forces Driving Demand for Quality and Food Safety

9. Director Gilberto Layese of the BAFPS delivered his talk on the Global and Regional Forces Driving Demand for Quality and Food Safety. According to him, the two main drivers for the increased vigilance on safe and quality foods are consumer and retailer demands for food safety, and the World Trade Organization (WTO) requirements for international trading.
10. Mr Layese mentioned that the implementation of a GAP program is method used to address the current requirements on food safety of the market today.
11. GAP as defined in his talk, is a collection of principles applied to on-farm productions and post-production processes, resulting to safe and healthy food, and non-food agricultural products, while taking into account economical, social and environmental sustainability. The objectives in the development of suitable GAPs were also enumerated. These are to collect, analyze, and disseminate information of good practices in the relevant geographical contexts.
12. Existing GAP programs and schemes of the various countries were also spelled out. These include Australia GAP programs (ie. Freshcare and SQF 1000/2000), USFDA GAP, Irish GAP, South American GAP (*Buenas Practicas Agricolas*), EUREPGAP, FAO GAP, ASEAN GAP, SALM Malaysia, Q-System Thailand, IndonGAP, GAP-VF Singapore, and DA-GAP Philippines.
13. In his concluding note, Mr Layese noted that the critical challenge in implementing GAP or any other parallel programs is to guarantee that these programs would consider the interest of small farmers in developing countries, thereby, ensuring that all stakeholders will benefit from its application.
14. The powerpoint presentation on Global and Regional Forces Driving Demand for Quality and Food Safety is shown in **Annex 4**.

Introduction to Good Agricultural Practices: Principles

15. Dr Robert Premier from the DPI-Australia presented an overview GAP. The presentation covered six (6) areas: a) drivers for GAP; b) principles of GAP; c) risk analysis as applied to GAP; d) implementing GAP; e) equivalency issues; and f) GAP and the eco-regions.
16. Dr Premier mentioned that the development of GAP as a significant food safety management system applied in the farm is triggered by changing consumer and retailer interests as well as by the evolving concerns in the international trade/standards regulating bodies.

17. The principles of GAP were discussed by Dr Premier. According to him, the general principle of risk analysis is similar to the principles of GAP. The components of risk assessment, risk management and risk communication are also being applied in a GAP system. Key areas that should be given consideration are: a) examining what farmers are doing/practicing; b) identifying the risks; c) making informed recommendations; d) implementing changes through training; and e) verifying that the changes have taken place.
18. The concept of equivalency was also made clear during the talk. Countries are recommended to use international standards, if it exists. If country specific guidelines are being implemented, they should be consistent, science-based and not arbitrary.
19. Dr Premier advised, however, that risks vary in each country or area. The development of GAP programs should be specific and relevant to each geographical area or eco-region. The elements of risk assessment, risk communication, and risk management should be taken into account for every GAP program.
20. The presentation on the Introduction to Good Agricultural Practices is found in **Annex 5** of this document.

Components of Good Agricultural Practices

21. A second presentation by Dr Robert Premier covered the components of GAP. His presentation emphasized that there is no specific rule on what constitutes a good GAP program since GAPs are specific for each eco-region and thus vary accordingly. However, the basic guidelines include food safety recommendations, environmental considerations, and socio-economic concerns.
22. Case studies on existing GAP programs, particularly in Australia, USA and ASEAN region were discussed during the presentation. A comparison of the components included in each GAP program is outlined in Table 1.

Table 1. Comparison of the components of existing GAP programs

Australia	USA	ASEAN
Microbiological Chemical Physical	Microbiological	Microbiological Chemical Physical Worker's Health and Safety Environmental quality

23. Dr Premier concluded that a GAP program should focus on increasing responsible farming practices related to food safety, environmental safety, sustainability and occupational health and safety.

24. The presentation on the Components of Good Agricultural Practices is shown in **Annex 6**.
25. Mr Scott Ledger, one of the resource speakers, gave a general comment that GAP components should be able to address the potential hazards in the farm. Recommended practices should be of minimum requirements in order to help farmers adopt it easily.

Session 2: GAP Activities around the world
GAP Activities in Australia

26. Mr Scott Ledger, Principal Extension Horticulturist of the Department of Primary Industries and Fisheries (DPIF), Australia discussed about GAP activities in Australia. The presentation focused on the existing GAP and quality assurance programs in Australia, Freshcare, EUREPGAP, SQF1000 and 2000, HACCP, Woolworths QA, and ISO 9002.
27. The supermarket and retail industry in Australia paved the way for the development of GAP and other QA programs for the food industry. Australian supermarkets require farmers to have third (3rd) party certification since 1998. It involves three levels of management: GAP, HACCP and a QA system such as ISO.
28. To date, almost 2,355 farmers in Australia are Freshcare certified farmers while there are 200 farms certified under the EUREPGAP system. There are 1,200 supply chain businesses compliant with SQF 1000 and SQF 2000, 4,000 businesses HACCP-certified, 570 business Woolworth QA-certified and 50 supply chain businesses ISO 9002-certified.
29. The Freshcare program is the most prevalent GAP scheme applied in farm systems and the horticulture industry. It covers module on management, chemicals, food safety, environment and product and handling specifications
30. There are six steps to follow in becoming Freshcare system certified:
a) registration to Freshcare; b) completion of training;
c) implementation of Code of Practice; d) initial assessment by auditor from accredited certification bodies; e) certification by Freshcare; and f) annual compliance audit.
31. Mr Ledger summarized the process by which Freshcare system was benchmarked with other existing QA programs and presented the comparative cost of certification in Australia, as shown in Table 2.

Table 2. Comparative costs of certification in Australia

Certification Program	Fees (AUD/year)	Audit (AUD/year)	Other costs
Freshcare	50	300-400	Training in year 1 MRL test on one crop
SQF 1000	25-210	350-400	Training in year 1 Expert to verify system MRL test on one crop
HACCP	0-50	500-800	Training in year 1 MRL test on one crop
EUREPGAP	40-200	600-1200	Training in year 1 MRL test on all crops

32. Although these certification schemes usually entail a lot of costs, farmers and producers are still willing to adopt these systems because they increase access to markets and customers.

33. While there have been many farmers who were able to implement the different QA schemes, confusion about what is really required by the industry still exist. Since these food safety systems are voluntary, producers are willing to adopt other food safety management systems.

34. Faced with the above-mentioned scenario, Mr Ledger advised that awareness programs is a critical element to ensure success in certification. It was also suggested that guidelines should be prepared to minimize confusion and improve consistency of adoption and auditing.

35. Mr Ledger noted that a strong driving force is needed to encourage adoption and that education is needed to strengthen the adoption of GAP as an appropriate level of management of farms, not only in Australia but in other countries.

36. GAP activities in Australia are outlined in **Annex 7**.

Produce Safety Action Plan

37. Ms Cecilia P. Gaston of Exponent, Incorporated (Ltd.) USA provided a perspective on the GAP system being implemented in the US. According to the USFDA, GAP was an offshoot of the Food Safety Initiative/Action plan developed during the time of President Clinton.

38. The Produce Safety Action Plan covers fresh fruit and vegetables from farm to the table. Its general objectives are: a) to prevent microbial contamination; b) minimize public health impact; c) improve communication; and d) facilitate support and research.
39. In achieving its objectives, guidance documents and regulations are being developed by key agencies in US. A Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables (GAPs guide) was developed consistent with the Produce Food Safety Action Plan.
40. The guide mentioned practices common to the growing and packing of most fresh produce consumed in the US. It is being reviewed periodically, taking into account feedbacks and outcomes in the implementation experiences of the farmers in using the guide.
41. Another impact of the Produce Safety Action Plan is the establishment of the lettuce initiative. This undertaking focuses on enhancing the safety of lettuce and rapid alert systems in the likelihood of outbreaks.
42. In closing, Ms Gaston emphasized that the key success of the Produce Safety Action Plan depends on the collaboration with food safety partners, private industry, consumer groups and other stakeholders.
43. The paper on the Produce Safety Action Plan is attached as **Annex 8**.

EUREPGAP

44. Mr Sathianathan Menon of QA Plus Asia Pacific briefed the participants on Euro-Retailer Produce Working Group and Good Agricultural Practices (EUREPGAP). The EUREPGAP started as an initiative of the retailers in 1996 to harmonize GAP for all sources of supply. It is a private sector-led group that sets voluntary standards for the certification of agricultural products around the globe.
45. EUREPGAP objectives include a) recognizing the existing best practice through mutual recognition or “benchmarking”; b) enhancing the credibility of “all farm assurance” by reinforcing robust processes for non-compliance, ensuring auditor competence and harmonizing interpretation of technical criteria; and c) encouraging non-participating producers to embrace farm assurance.
46. EUREPGAP focuses on: food safety, environmental safety, and social standards. It also has five reference standards with which products are benchmarked, a) EUREPGAP for Fruit and Vegetables; b) EUREPGAP Protocol for Flower and Ornamentals; c) EUREPGAP Protocol for integrated farm assurance-Beef and Lamb, Dairy, Pigs, Poultry, Multiple crops; d) EUREPGAP Integrated Fish Assurance Standard-Salmon, Tilapia and shrimps; and e) EUREPGAP Tea Standards.

47. EUREPGAP is the most widely recognized GAP standards in the market. Certificates for EUREPGAP have been issued in more than 60 countries in all continents with 35,000 certified growers.
48. Members of EUREPGAP fall into three types: a) supplier members, b) associate members (from other input based industries), and c) retailers and food service members. It also has a National Technical Working Group (NTWG) that develops implementation guidelines and submits it to the EUREPGAP standards committee.
49. Farms and suppliers can be EUREPGAP certified via two (2) schemes. The first (1st) is individual certification wherein the farmer is the certificate holder. The second (2nd) option is the group certification in which the farmer group is the certificate holder.
50. Mr Menon also presented some benchmarking activities done in various countries like Kenya, Japan, Mexico, Ghana, and China. By adhering to EUREPGAP standards, these countries were able to enhance recognition and acceptability of their products worldwide.
51. The presentation on the EUREPGAP System is found in **ANNEX 9**.

Session 3

Good Agricultural Practices (GAP) Program - Philippines

52. The GAP program of the Philippines was discussed by Director Gilberto F. Layese of the BAFPS. His presentation focused on the Administrative Order (AO) issued by the Department of Agriculture (DA) on the certification scheme for fresh fruits and vegetable farming and the checklist to be used during inspection. Mr Layese also gave an update of the program since its adoption. The full text of his presentation is found in **ANNEX 10**.
53. The objectives of certification scheme are to: a) increase the market access of horticultural products both in the local and international markets; b) empower farmers in responding to the demands of the market regarding food safety and quality, and c) uplift the farmers profile as members of the nationally recognized list of vegetable farmers who are setting the benchmark for the production of safe and quality fruits and vegetables. Mr Layese drew specific attention to the composition of the GAP Certification Committee. The Committee is composed of members from the different Bureaus under the DA. This will ensure the integrity of the Certification Committee.
54. Mr Layese recognized the existing GAP programs of Malaysia, Thailand and Indonesia as the reference GAP programs used in conceptualizing the Philippine GAP. The GAP programs of the countries mentioned were fully subsidized by the government. Following the steps of neighboring ASEAN countries, he informed the body that the Secretary of the DA has ordered the GAP Certification

Committee to waive the fees covering laboratory analysis. Thus, the costs of analyses shall be shouldered by the various agencies involved in the implementation of the program. This will bring about the necessary amendments to the current AO specifically on the provision on fees.

55. Major inspection points in the inspection checklist are: farm location, farm structure, farm environment (soil/nutrients), farm maintenance (hygiene and cleanliness), farming practices and farm management.

Capacity Building for GAP in Thailand

56. Ms Varee Charoenpol, Director of the Standards Product Promotion Working Group of the Department of Agricultural Extension presented the Capacity Building for GAP in Thailand.

57. She reported that there are three (3) main objectives for the GAP implementation in Thailand. These are to: a) maintain consumer confidence in food quality and safety; b) promote safe practices for growers; and c) minimize negative impacts on the environment. She further elaborated on the status of GAP implementation giving focus on the percentage of GAP certified crops.

58. Ms Charoenpol also discussed the procedure for GAP certification. She touched on the organizational chart of the Department of Agricultural Extension and its role as an advisory body to the GAP program. The full text of her presentation is found in **ANNEX 11**.

Malaysian Farm Certification Scheme for GAP (SALM) Standard

59. The Malaysian Farm Certification Scheme for GAP Standard, known as the SALM, was presented by Mr Baharuddin Abdul Manap, Assistant Director of the Agriculture Extension Training Institute-Department of Agriculture. His presentation covered the procedure for certification and the sixteen (16) elements for the SALM certification. Full text of the presentation is found in **ANNEX 12**.

60. SALM is a national program implemented by the Department of Agriculture to recognize and accredit farms which adopt GAP, operate in an environmentally friendly way and yielding quality and safe products for human consumption. The Malaysian SALM system, as discussed by Mr Manap, was based on two (2) standards namely: Malaysian SALM MS 1784:2005 Crop Commodities-Good Agricultural Practices (GAP) and the EurepGAP protocol for fruits and vegetables that are not defined in the MS-GAP.

61. Mr Manap also presented that 29 items of the rules of the SALM standard are major musts, 76 are minor musts and 57 are encouraged practices. Only farms that fulfill 100% of major musts plus 95% of minor musts will be given a certificate

62. During his discussion on the 16 elements of the SALM standard, he stressed that the provision on soil erosion control and adoption of field cultivation techniques that minimizes soil erosion should only be conducted by a certified body.

Indonesian Good Agricultural Practices (IndonGAP)

63. Dr Irsal Las Suyamto, Director of the Indonesian Center for Food Crops Research and Development discussed the Indonesian Good Agricultural Practices or INDON-GAP. He stated that although Indonesia has an existing program in place, it cannot be considered as advance in its implementation.

64. He discussed the categories of standards adopted in INDON-GAP. These are the: recommended practices (R), highly or strongly recommended (SR) practices, and the must (M). The INDON-GAP consists of 11 “must” regulations, 110 “strongly recommended” regulations, and 66 “recommended” regulations. Table 3 shows the summary of the categories of standards. The controlling groups has 14 components.

Table 3. Summary of category of standards

No.	Group of Controlling Item	Application status of regulation		
		Must	Strongly Recommended	Recommended
1	Land and location selection	3	14	7
2	Seed and variety		3	1
3	Planting		3	3
4	Fertilization	2	10	8
5	Pest control	5	30	10
6	Irrigation		3	7
7	Crop management		3	4
8	Harvest		5	4
9	Post harvest handling		19	8
10	Machinery utilization		1	2
11	Environmental sustainability		1	1
12	Working safety	1	12	3
13	Cleanness and sanitary		3	
14	Recording controlling		3	8
Total controlling items		11	110	66

65. Dr Suyamto further elaborated that a farm applying for INDON-GAP certification can be approved based on three (3) categories or schemes. Prima One (P-1) is granted to farmers that applies agricultural practices covering safety, quality and environment friendly production processes. Prima Two (2) is granted for those farms that adhere to safety and quality practices. Prima Three (P-3) is granted to

farms that only apply practices to ensure food safety. Table 4 shows the different Primas.

Table 4. IndonGAP Prima

Prima One	Prima Two	Prima Three
-Apply all (100%) M regulations -Apply \geq (90%) SR regulations -Apply \geq (60%) R-regulations	-Apply all (100%) M regulations -Apply \geq (70%) SR regulations -Apply \geq (40%) R-regulations	-Apply all (100%) M regulations -Apply \geq (60%) SR regulations -Apply \geq (20%) R-regulations

66. Dr Suyamto informed the body that the INDON-GAP program has not been implemented yet. It is still in its “socialization” process. He enumerated the constraints the government has encountered at the farmer level. These are: low production scale, inadequate education of farmers, lack of capital, poor management, poor market access and consumers concern on prices.

67. In conclusion, he recommended that there is a need for a strong collaboration among Asian countries in GAP development including capacity building on GAP, training, education, sharing information, and in the harmonization in GAP implementation.

68. Full text of his presentation is found at **ANNEX 13**.

Good Agricultural Practices for Vegetable Farming (GAP-VF) Certification Scheme

69. The GAP program in Singapore was presented by Ms Khoo Gek Hoon, Head of the Quality Systems Branch-Agri-Food and Veterinary Authority (AVA) of Singapore. The full text of her presentation is shown in **ANNEX 14**. Ms Khoo informed the group that even though Singapore is not a major producer of fresh fruits and vegetables, it is a major importer of fresh produce. Thus, to ensure the safety of its population, the government has imposed strict regulations on the importers.

70. Her presentation covers forces driving the development of food safety programs in Singapore, GAP-VF certification scheme, projects developed to sustain the program and efforts done to meet the challenges faced in implementing the program.

71. She emphasized that it is important to encourage shared responsibility between the government and concerned industry since in most developing countries, specifically in the ASEAN region, they rely solely on the government. In order to encourage shared responsibility, the Singaporean government enhanced its self-regulatory program.

72. Ms Khoo discussed in detail the key elements of the GAP-VF which include objectives, standards, regulations, administration and continual

improvement including review. She emphasized that it is very important to define the objectives of the program first so that outcomes can be assessed vis-à-vis the objectives. This will then give the government a wider picture on the progress of the program. Ms Khoo informed the body that GAP-VF certification scheme of Singapore is voluntary and applies to all licensed domestic vegetable farms. Only AVA can also issue the certificate.

73. She concluded by stating that to meet future challenges, it is important to assure the safety of diversified fresh produce supply and to sustain the limited agriculture activities in Singapore.

Good Agricultural Practices in Chile

74. The overview of Chilean agriculture was presented by Mr Bernabe Tapia, Analyst at the Vegetable Production Sector of the Studies of Agrarian policies Bureau-Ministry of Agriculture. The GAP National Scheme was discussed by Ms Pilar Eguillor Recabarren, Agricultural Officer at the Studies and Policies Bureau-Ministry of Agriculture.

75. Ms Eguillor Recabarren discussed the history of the establishment of Chile GAP. In early 90s, a massive change in the rules and conventions of international commerce and the initial wave on GAP implementation worldwide has affected the agricultural activities in Chile. In response to this, the Ministry of Agriculture established the GAP National Commission in 1991. The main objective of the Commission was to advise the Ministry in the development of policies to help incorporate GAP concepts in the Chilean agriculture productive processes. Currently, the National Commission has developed 16 GAP general regulations for fruit, horticultural and animal production.

76. She also emphasized that the Chilean Fresh Fruit and Vegetables Good Agricultural Practices (ChileanGAP) is a private GAP and the certification scheme was developed by the Fruit Development Foundation (FDF).

77. Ms Eguillor Recabarren discussed the ChileGAP® certification scope, objectives, normative documents, control points and compliance criteria, certification process and the implementation aspect. She further elaborated that a farm can either be issued a ChileGAP® certificate or a ChileGAP® report on progress. The table below shows the compliance criteria.

Table 5. Compliance criteria for ChileGAP

Requirement for ChileGAP® Certification	100% of the major musts points 95% of the minor musts points 70% of the must points
Requirements for ChileGAP® Report on Progress	100% of the major must points 70% of the other minor must and must points

78. To give the body an update on the ChileGAP® program, she enumerated important milestones. In 2004, the ChileGAP® achieved full equivalency to EUREPGAP. In 2005, a harmonized standard recognized in the US and Europe was developed. In 2006 the Chilean growers only had one audit to export to both markets.
79. According to her, ChileGAP® is the most modern GAP and food safety standard in the world meeting even the most demanding requirements of the sophisticated markets.
80. She presented several figures pertaining to the number of certified farms, certified number of hectares, percentage of exportable volume, number of GAP certification bodies operating in Chile, and statistics of training and consulting companies supporting the implementation of EUREPGAP in Chile.
81. Full text of the presentation material is found in **ANNEX 15**.

Good Agricultural Practices in China

82. The Good Agricultural Practices (GAP)-related activities in China was presented by Mr Mu Shaofei, Agricultural Officer of the Center for Agro-Food Quality and Safety-Ministry of Agriculture. A copy of the presentation material is found in **ANNEX 16**.
83. Mr Shaofei updated the body on the Agro-Food Safety Program in China which is basically a guarantee system on standards, monitoring and certification. This program also controls measures for inputs and environmental protection. He also discussed the implementation of GAP through combination and innovation, strengthening the training of practitioners and strengthening international cooperation and exchange.
84. China has trained nearly 50,000 practitioners for GAP.

GAP: Mexico Program

85. The GAP program in Mexico was presented by Mr Victor Miguel Garcia Moreno, Fresh Produce Food Safety Underdirector of the National Service for Animal and Plant Health. His presentation material is shown in **ANNEX 17**.
86. Mr Garcia Moreno enumerated the criteria under the guidelines for the voluntary implementation of Good Agricultural Practices in the production and packing processes for fresh produce for human consumption. These are: a) water for agricultural use; b) field history and management; c) use of fertilizers; d) pesticide use and management; e) product harvest; f) field packing; g) product handling; h) water for use and human consumption; i) rest rooms and hand washing stations; j) personal practices; k) installations; l) water used

after harvest; m) post harvest treatments; n) cool rooms and warehouses; o) transport; p) hygiene items; q) operation manuals; and r) traceability.

87. He emphasized that the Mexican GAP is a voluntary program intended for fresh fruits and vegetables. However recently, nuts and dehydrated pepper were included in the scope of the certification. For the program, the government has issued GAP General Guidelines and GAP Protocols for seven specific products. Presently, records show that there are 91 certified farms, and 108 production units registered which include fields and green houses, 52 packing units.

Fruits and Vegetable Production in Vietnam

88. A situationer on the fruits and vegetable production in Vietnam was presented by Dr Le Thanh Hoa, Researcher of the Biological Research Center, National Institute of Plant Protection-Ministry of Agricultural and Rural Development. Full text of his presentation material is shown in **ANNEX 18.**

89. Dr Le updated the body that as of the moment, Viet Nam does not have a GAP program in place. This may largely be due to factors such as farm size, knowledge of the farmers, lack of capital and poor production practices. Farms in Viet Nam are small and not concentrated in one area. This is a hindrance in conceptualizing a comprehensive GAP program for small farmers. Most farmers produce rice, which is not included in the GAP program.

90. As this may be the case, Dr Le was optimistic that GAP can also be implemented in Viet Nam through the following strategies: establishment of a manual for clean fruits and vegetable production, creation of a protocol to apply GAPs for fruits and vegetable production from 2006-2010 and improvement of infrastructure of production areas.

Highlights of Country's GAP Programs Implementation

91. The highlights of the different country's GAP program implementation were presented by the project consultants, Dr Alice Alma Bungay and Dr Leonila M. Varca. The full text of their presentation is shown in **ANNEX 19.**

92. The project consultants discussed the drivers for the heightened awareness of consumers on food safety and their clamor for a GAP program. These include dramatic changes in food consumption and enormous change in the diversity and choice of the food supply thereby increasing the demand for agricultural produce.

93. Among the GAP schemes presented by the participating APEC countries, it was evaluated that most programs are voluntary in nature with major emphasis, in varying degrees, on food quality and safety of

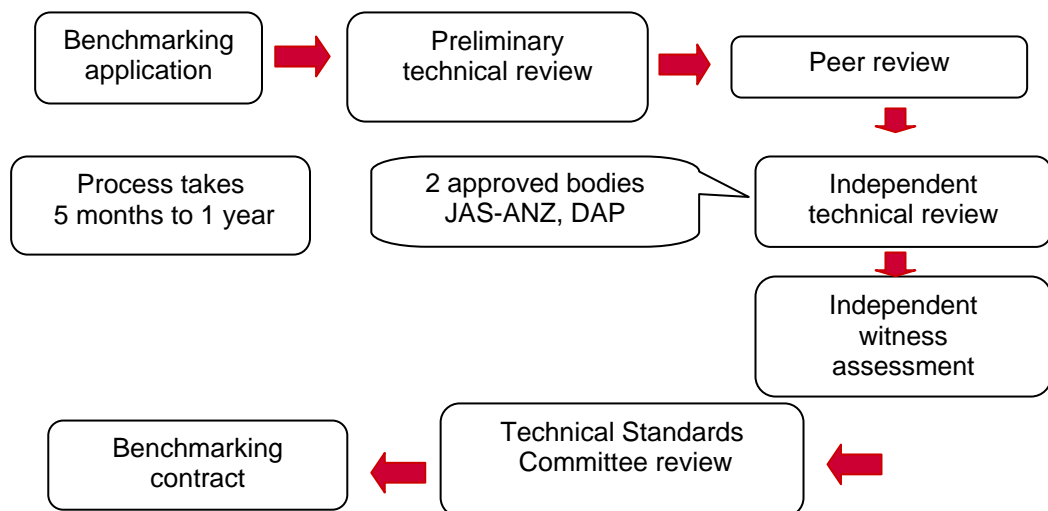
consumers, environmental sustainability, farm management, worker's safety and hygiene, and documentation, traceability or recall.

94. Detailed observations on the different GAPs were presented by Dr Bungay. In Australia there were several programs pertaining to GAP like SQF 1000, SQF 2000 and the Freshcare schemes. She noted that the United States of America (USA) created its own version of GAP which focuses on microbial contamination. They also pointed out that US has a separate GAP for pesticide usage.
95. Dr Bungay expressed that initially EUREPGAP was designed to encourage adoption of commercially viable farm quality assurance schemes to minimize the use of agro-chemicals. She observed that among the GAP programs in place, EUREPGAP is the most comprehensive and most detailed. EUREPGAP has added features on waste and pollution management, recycling and re-use, recordkeeping, internal self-inspection, environmental issues and complaint handling.
96. The ASEAN GAP is focused on the following aspects: food safety, environmental impacts, worker health, safety and welfare, and produce quality. The main objective of the ASEAN GAP is to prevent risk associated with production and post-harvest handling of fresh fruits and vegetables.
97. She also reported on the features of ChileGAP- the most modern GAP and food safety standard in the world. The ChileGAP is a private program unlike most schemes initiated in other countries, which are government-led. Dr Bungay informed that ChileGAP has fully achieved equivalency to EUREPGAP and is now recognized by European and USA markets. The most important control points and compliance criteria of ChileGAP are: variety and root stocks, soil and substrate handling, handling of phytosanitary products, labor safety and labor conditions and basic services for personnel.
98. The Mexico GAP is a voluntary program of Mexican farms that include both production and packing process for fresh produce. Dr Bungay discussed that the Mexican GAP puts more emphasis on workers hygiene and practices.
99. She also discussed the Viet Nam GAP which emphasized fruit and vegetable production. The Viet Nam GAP followed the 4 basic modules of the ASEAN GAP.
100. China GAP was the final program discussed. The Agro-Food Safety Program guarantees system on standards monitoring and certification. Emphasis was placed on documentation and capacity building activities for GAP practitioners.
101. In conclusion, Dr Bungay presented several options for the future directions of the different country's GAPs. These are:

harmonization of the different GAPs, compliance of “big” agricultural producers with GAP requirements and taking into account the interest of small-scale producers and farmers in developing countries.

Session 4
Options for EUREPGAP Certification

102. A case study focusing on the Option for EurepGAP Certification was presented by Mr Scott Ledger of DPIF-Queensland, Australia. He recalled that options for EUREPGAP certification were already mentioned by Mr Sathianathan Menon in his earlier presentation. To recapitulate, Mr Ledger presented a simple schematic diagram of the different options for certification. These are EUREPGAP standard and EUREPGAP approved scheme. Under each category, two options were introduced. First was for an individual farmer and the second one for a farmer group.
103. To give emphasis on the impact of EUREPGAP certification, he gave statistics on a number of certified farms, approved schemes, number of countries with certified EUREPGAP farmers and approved certification bodies worldwide.
104. Mr Ledger also discussed in detail the benchmarking process (see figure below). Regarding the fees, he presented a table showing the corresponding fees for the certification process.
105. To illustrate further the provisions of EUREPGAP that Australia adopted, he showed a comparison table on traceability. It is worthy to note that Freshcare of Australia has a corresponding or equivalent provision on traceability or recording similar to that of EUREPGAP.



106. Mr Ledger showed an example of the protocol an Australian firm has to go through to achieve EurepGAP certification.
107. Full text of his presentation material is shown in **ANNEX 20**.

FDA GAP Training Programs

108. The FDA GAP training programs were discussed by Ms Cecilia Gaston of Exponent Incorporated. She said that GAP as defined by FDA pertains to the basic environmental, human health and sanitary operational practices that are necessary for the production of safe, wholesome fruits and vegetables. She stressed that the scope of the FDA GAP is limited to fruits and vegetables.
109. Ms Gaston discussed in detail the GAP Train-the-Trainer Program. The program covers a wide range of topics on improving safety and quality of fresh fruits and vegetables. Lectures, demonstrations, problem analysis, farm and production facility visits and evaluation aid in the learning process. The program is a five-day in-country training course for extension specialists and other individuals with responsibilities for education and outreach on produce and food safety. This training course is conducted by a teaching team of US government representatives and academic faculty. The objectives are focused on training workers in understanding roles in reducing foodborne illnesses, improving practices and providing exporters with adaptable framework of practices.
110. Ms Gaston informed the body that aside from the FDA train-the-trainers program, there are national GAPs that aid in ensuring safe and quality supply of fresh fruits and vegetables.
111. The full text of her presentation is found in **ANNEX 21**.

Session 5: GAP Components on Focus ***GAP: Food Safety Module***

112. The food safety component of GAP is one of the critical ingredients in its development. Dr Robert Premier discussed food safety risks that are given focus in a GAP program.
113. The risks considered in the food safety module include chemical, physical and microbiological risks. Chemical risks could be divided into two areas namely, environmental and people safety. In the people safety aspect involving chemical risks, the main areas to consider are: a) people who prepare and handle chemicals; b) people who enter the sprayed area; c) families of those who handle pesticides; d) bystanders and people in spray drift areas; e) hospital admissions from on-farm poisonings. He discussed the link between prostate cancer and arsenical use and anecdotal reports of health problems of people handling chemicals in the farms. Chemical hazards related to environmental safety focus on wildlife, soil residue, and environmental management systems.
114. GAP approaches to manage risks that are chemical in nature involves control in its storage, handling, clean-up and disposal. Risk

control should include plans against unintended spills, specifying containment procedures, spill kits and documented instructions.

115. Proper documentation protocols should be done methodically, particularly on storage, use, clean up and spills of chemicals used in the farm. Latest information on allowable maximum residue levels (MRLs) and regulations on chemicals should also be obtained periodically.
116. Microbiological risk contamination in horticulture produce is a big concern in the industry. There are actually a lot of documented and undocumented outbreaks in which the causative agents are microorganisms.
117. In a study of the variations of microbial flora in leafy lettuce, it was found out that leafy lettuce contains more than 100 different microbial species. Survival of these microorganisms also differs on the conditions of storage of the horticulture produce when microorganisms survive longer in damaged plants.
118. There are several conclusions that were emphasized in the presentation of Dr Premier such as: a) there is potential for microbial contamination throughout the production chain; b) washing vegetables with sanitized water is not effective in eliminating microbes in on-the-surface bacteria, c) the survival of bacteria on produce in the field is increased substantially by minor damage to plants; d) bacterial growth on cut surfaces and on whole fruit and vegetables poses a risk.; and e) a HACCP based QA and GAP guidelines are still the best tools to manage these risks.
119. The module on the food safety component of GAP is shown in **Annex 22.**
120. The participant from Mexico asked if the Australian GAP has included allowable microbial load limits for the different crops. According to Dr Premier, Australia has included limits in its guidelines. He added that only microorganisms that are important to food safety are being controlled. He emphasized that GAP prevents multiplication of microorganisms, thus avoiding the need for end-product testing.
121. Concerns on the cleaning and collection of used chemical containers were discussed. The body agreed that the most appropriate solution would be to implement a refund system that should be initiated by the supplier of these chemicals.

GAP Environmental Safety Module

122. Ms Cecilia Gaston discussed the module on environmental safety. According to her, there are many factors to consider in soil and water: a) fecal and chemical contamination; b) organic and hazardous

wastes; c) agricultural chemicals; d) contamination by silt, run off and spray drift; e) adjacent farming activities; and f) industrial activities.

123. Application of appropriate GAP measures should be able to prevent microbial and chemical contamination. In checking the soil quality, it is important to know the history of the site (ie. flooding incidences, etc.). Likewise in ensuring that water used is safe, there should be regular checks to verify water quality and apply appropriate irrigation methods; animals should be prevented in the perimeter of the farm and nearby water sources, maintain a sound pest control program and through proper and thorough composting of manure.
124. The presentation on the environmental module is found in **Annex 23.**
125. There was an inquiry whether a farm that was previously used as a cemetery can be certified under GAP. Dr Alice Bungay, strongly opposed the idea that cemeteries be used as farms. According to her, the causes of death of the people are not known. The cadavers might carry pathogenic, disease causing bacteria, and should be the source of contamination of crops that will be cultivated in the area.
126. The delegate from Viet Nam raised his concern on guidelines on the application of organic fertilizer. Dr Gaston responded that technologies and recommendations, like fertilizer applications, should be based on scientific results. She added that investing on research endeavors on these is important.
127. Concern on genetically modified organisms (GMOs) and their regulation in relation to GAP was raised by Chile. According to Dr Premier, food safety should not be a concern for GMOs. However, trepidations on the environmental safety remain. In some countries, GMOs are banned. Likewise, in the ASEAN GAP, GMOs are excluded since they require different standards and insect resistance management (IRM) strategies.

GAP: Worker, Health and Safety Module

128. Mr Scott Ledger talked about the module on worker, health and safety. In the risk analysis framework, the identification of hazards is the first step being carried out. It is noted that consultation with the workers/employees is essential in the identification of hazards. The next step is the assessment of risks, whether it would fall under low, medium or high risks. Corrective actions through GAP are implemented in order to control such hazards. Periodic monitoring and review is essential to ensure that the system is working.
129. Such hazards can be classified into mechanical, chemical, electrical and biological hazards. Other hazards like psychological and welfare hazards should also be given consideration.

130. Upon identification of the hazards, assessment of the risks, whether they fall under low, medium or high risks should be conducted. The frequency of exposure to the hazard should also be documented.
131. In the elimination of risks, corrective actions and guidelines needed to be implemented. GAP should be able to minimize hazards and the possibility of occurrence of risks.
132. The module on worker health, safety and welfare is shown in **Annex 24.**
133. Mr Ledger gave an exercise for the group on identifying hazards, assessing risks and giving appropriate recommendations or measures/corrective actions to minimize/prevent hazards.
134. The group was able to give appropriate recommendations and corrective actions based on the scenarios given in the exercise. In conclusion, there were many risks involved in growing, harvesting and selling of crops. It is only a matter of identifying the risks which should be given priority.

GAP Documents, Traceability and Recall

135. The last presentation of Mr Scott Ledger focused on documents and records, traceability and control. Documents used in the production, harvesting and selling of farm produce provide a record of what has been done. Effective documents should be able to communicate information to workers and customers. As such, these documents need to be user-friendly, easy to understand, accessible, up-to-date, and relevant to the situation.
136. Some required documents include farm plan, personal hygiene instructions, cleaning and pest control plans, chemical inventory, spray record, fertilizer and soil additives record and risk assessment records.
137. Farmers need to be aware of the latest MRLs being set by the country or the international organizations. An action plan should be considered whenever MRLs are exceeded. Post harvest indexes should be filed properly and should always be ready.
138. Records of training and a progressive plan on what other trainings need to be conducted should be properly filed.
139. With the proper documentation and recording system, products could be traced back to the farm. Forwarding the necessary information to the consumers will also be easy. Examples of recording and labeling schemes are: identification of each separate production by a batch code/name, records of production site, date of supply and destination.

140. A traceability plan should also be developed. It should include specific instructions for recalling products and investigating the source of problem.
141. The presentation on GAP documents, traceability and recall is shown in **ANNEX 25.**
142. Dr Cecil Gaston asked about the responsible agency whenever an outbreak occurs. According to Mr. Ledger, the farmer should have a good traceback in order to know the source of foodborne disease outbreaks.

EUREPGAP Inspection Procedures

143. Mr Sathianathan Menon discussed the inspection procedures used by EUREPGAP. The discussion focused on: a) introduction to EUREPGAP control points; b) control point criteria; and c) inspection procedures.
144. Producers wishing to apply for EUREPGAP need to demonstrate compliance to the EUREPGAP self-assessment and an annual audit by a licensed certification body. They should also comply totally with the Major Control Points identified in EUREPGAP. On the other hand, a five percent (5%) tolerance in the compliance to the Minor Control Points is allowed.
145. Some major components of the EUREPGAP system are: traceability, record keeping, varieties and rootstock, site history and management, soil substrate and management, fertilizer use, irrigation, crop protection, harvesting, produce handling, waste and pollution, and handling complaints.
146. Inspection for compliance shall include determining whether each of the abovementioned areas needs major compliance levels and identify the compliance criteria.
147. The paper on EUREPGAP inspection procedures is shown in **ANNEX 26.**

Produce Farm Investigations

148. Produce farm investigations were discussed by Dr Cecil Gaston. The USFDA conduct produce farm investigation in order to trace back the sources/causative agents of outbreaks identified to a particular farm. The investigation aims to minimize the potential for illness caused by produce in question from entering interstate commerce.

149. A Guidance document to minimize microbial hazards in fresh fruits and vegetables was developed to help investigators with their case.
150. In the conduct of a farm investigation, the first (1st) step is to assemble the multidisciplinary team led by the USFDA. The team then conducts the investigation using the Guide to Produce Farm Organizations.
151. Factors to be considered include: diagram of the farm layout, water quality resources, information on manure source, treatment and storage, and number of animals in the area.
152. The areas that need to be investigated are on worker health and safety, sanitary facilities, field sanitation, processing and packing operations, and cooling and transport.
153. It is important to remember that investigations should be conducted in a timely and proper manner. Investigators should obtain and review records for the time period when the produce was planted, harvested, packed and cooled.
154. If sufficient information has been acquired, the investigating team discuss all observations including those that apply to GAPs. The questionnaire and guide cover all possible scenarios during outbreaks and is very helpful during the conduct of an investigation.
155. Lastly, Ms Gaston emphasized that the key component in doing produce farm investigations is asking the farmer himself.
156. The presentation on produce farm investigations is found in **Annex 27**.

GAP Training Extension Programs

157. The experience of Singapore in implementing its GAP-VF scheme was presented by Ms Khoo Gek Hoon. Her presentation includes a quick history in the development of the agriculture industry. Also, Ms Khoo presented the challenges in implementing the GAP-VF degree.
158. According to Ms Khoo, the farming industry is a phased out industry in Singapore. Thus, farms employ modern intensive farming methods in order to maximize the resources.
159. The crops being grown in Singapore are mostly leafy vegetables. Through the AVA of Singapore, farmers are constantly being trained on GAP. Farmers are also taught about protected cultivation, IPM and safe pesticide uses.

160. Components of GAP-FV Singapore include areas on: a) farm location, b) farm structure, c) farm maintenance, d) farming practices, and e) farm management.
161. Since its implementation two years ago, Singapore has continuously tried to convince farmers on the benefits of GAP and explain misconceptions regarding the program. AVA has done phase-in implementation of the GAP. Reading and outreach materials are part of the documentation by the Government.
162. While during the past years, at AVA has been aggressive in imposing their GAP-FV system, many challenges still exist, particularly on identifying credible certification systems.
163. In 2005, Singapore has come up with a Riau-Singapore Vegetable Project. Its main objective is technology transfer and creation of processing centers, and market development for Indonesian vegetables.
164. The GAP Training Extension Program presentation is in shown **Annex 28.**

Closing Ceremony

165. Director Layese closed the ceremony by expressing his gratitude to the resource speakers, consultants and delegates.

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**Capacity Building Seminar on Good Agricultural Practices (GAP) for
Developing APEC Economies
The Richmond Hotel, Ortigas Center, Manila, Philippines
19-21 September 2006**

Monday, 18 September 2006

Arrival of Delegates

Tuesday, 19 September 2006

08:00-9:00	Registration	
09:00-09:20	Opening Ceremony	
	Welcome Address & Message	Hon. Domingo F. Panganiban Secretary Department of Agriculture- Philippines
<i>Session 1</i>		
<i>INTRODUCTION</i>		
09:20-09:35	Global and Regional Forces Driving Demand for Quality and Food Safety	Mr. Gilberto F. Layese Director Bureau of Agriculture and Fisheries Product Standards (BAFPS)
09:35-10:00	Introduction to Good Agricultural Practices (GAP) : Principles	Dr. Robert Premier Section Leader Department of Primary Industries Victoria, Australia
10:00-10:20	Introduction to GAP: Components	Dr. Robert Premier Section Leader Department of Primary Industries Victoria, Australia
10:20-10:40	Coffee Break	
<i>Session 2</i>		
<i>GAP ACTIVITIES AROUND THE WORLD</i>		
10:40-11:00	GAP Activities in Australia	Mr. Scott Ledger Principal Extension Horticulturist Department of Primary Industries and Fisheries, Queensland, Australia
11:00-11:20	FDA GAPs: Product Safety Action Plan	Ms. Cecilia Gaston Managing Scientist, Exponent
11:20-11:40	EUREPGAP	Mr. Sathianathan Menon Director QA Plus-Asia Pacific Sdn.Bhd.

MS. KAREN KRISTINE A. ROSCOM
Moderator

11:40-12:00	Open Forum	
12:00-13:00	Lunch	
Session 3	COUNTRY PRESENTATIONS	
13:00-13:20	Good Agricultural Practices (GAP) Program – Philippines	Mr. Gilberto F. Layese Director Bureau of Agriculture and Fisheries Product Standards
13:20-13:40	Capacity Building for GAP in Thailand	Mrs. Varee Charoenpol Director Standards Product Promotion Working Group Department of Agricultural Extension-Thailand
13:40-14:00	Malaysian Farm Certification Scheme for GAP (SALM) Standard	Mr. Baharuddin Abdul Manap Assistant Director Agriculture Extension Training Institute Ministry of Agriculture-Malaysia
14:00-14:20	Indonesian Good Agricultural Practices (INDON-GAP)	Dr. Ir. Suyanto MS Director of Indonesian Center for Food Crops Research and Development
14:20-14:40	GAP for Vegetable Farming (GAP-FV) Certification Scheme	Ms. Khoo Gek Hoon Head, Quality Systems Branch Food Supply & Technology Department Agri-Food and Veterinary Authority of Singapore
14:40-14:50	Good Agricultural Practices (GAP) in Chile	Mr. Bernabe Tapia Analyst, Vegetable Production Sector Studies & Agrarian Policies Bureau ODEPA, Ministry of Agriculture-Chile Mrs. Pilar Eguillor Recabarren Agricultural Officer Studies & Agrarian Policies Bureau ODEPA, Ministry of Agriculture-Chile
14:50-15:00	Good Agricultural Practices (GAP) Program in China	Mu Shaofei Agricultural Officer Center for Agro-Food Quality & Safety Ministry of Agriculture
15:00-15:20	Coffee Break	

MS. KAREN KRISTINE A. ROSCOM
Moderator

15:20-15:30	Mexico GAP	Mr. Victor Miguel Garcia Moreno Fresh Produce Food Safety Underdirector
15:30-15:40	Fruits and Vegetable Production in Vietnam (usually agricultural practices to good agricultural practices orientation)	Dr. Le Thanh Hoa Researcher Biological Control Research Center National Institute of Plant Protection Ministry of Agricultural & Rural Development
15:40-15:50	Highlights of Country's GAP Program Implementation a) Common Features b) GAP Analysis c) Future Directions	Dr. Alice Alma C. Bungay & Dr. Leonila M. Varca Project Consultants
Session 4	CASE STUDIES	
15:50-16:00	Options for EUREPGAP Certification	Mr. Scott Ledger Principal Extension Horticulturist Department of Primary Industries and Fisheries, Queensland, Australia
16:00-16:30	FDA GAP Training Programs	Ms. Cecilia Gaston Managing Scientist, Exponent
16:00-16:30	Open Forum	
19:00	Welcome Dinner/Cocktails	

Wednesday, 20 September 2006

Session 5	GAP Components On Focus	
8:00-9:00	GAP: Food Safety Module	Dr. Robert Premier Section Leader Department of Primary Industries Victoria, Australia
9:00-10:00	GAP: Environmental Safety Module	Ms. Cecilia Gaston Managing Scientist, Exponent
10:00-10:10		
10:10-11:00	GAP: Worker health, safety and welfare	Mr. Scott Ledger Principal Extension Horticulturist Department of Primary Industries & Fisheries, Queensland Australia
11:00-12:00	Open Forum	
12:00-13:00	Lunch	

MS. KAREN KRISTINE A. ROSCOM
Moderator

13:00-14:00	GAP – Documents and Records Traceability and Recall	Mr. Scott Ledger Principal Extension Horticulturist Department of Primary Industries & Fisheries, Queensland, Australia
14:00-15:00	GAP (EUREPGAP) Inspection Procedures	Mr. Sathianathan Menon Director QA Plus Asia-Pacific Sdn Bhd
15:00-15:30	Coffee Break	
15:30-16:00	Produce Farm Investigations	Ms. Cecilia Gaston Managing Scientist, Exponent
16:00-16:30	GAP Training Extension Programs: Designed for Farmers	Ms. Khoo Gek Hoon Head, Quality Systems Branch Food Supply & Technology Department Agri-Food and Veterinary Authority of Singapore
16:30-17:00	Open Forum	
19:00	Reception Dinner	

Thursday, 21 September 2006

8:00-17:00 Field Visit to Commercial Farms

Free Night

Friday, 22 September 2006

Departure of Delegates

The Secretary's Welcome Remarks
Capacity Building on Good Agricultural Practices
For Developing APEC Economies
19 September 2006, Pasig City

Honored Guests, Ladies and Gentlemen: Good morning and welcome to the Philippines.

I would like to thank each of you for your participation in this initiative.

I want to pay particular tribute to our pool of experts from the United States, Australia, Malaysia, and Singapore, who have agreed to lend their talents and effort to this seminar.

At a time when the world economy is moving with increasing pace toward integration and free trade, the goals that this organization set forth in Bogor, Indonesia twelve years ago gains even greater relevance.

By 1994, the APEC – a project that began five years earlier as an informal dialogue between twelve nations had evolved into a powerful medium for regional prosperity through free trade and investments.

And it is this hope and promise of free regional trade and cooperation that continues to drive much of the economic reforms now undertaken by many developing APEC nations – including ours.

The results have been fruitful,

- In agriculture, it has strengthened the focus on competitiveness.
- It has brought attention to food safety and consumer health.
- It has encouraged more public and private investments in rural infrastructure, and better farm and fishery technologies.
- And it has highlighted the need for farm and fishery policies to ensure that our people are able to profit from our competitive advantages.

But free international trade can only work if all nations possess the capacity to produce commodities that are equal to the standards of the open market.

Today changes in consumer lifestyles in the region – and throughout the world – are driving the demand for assurance that food is safe to eat, and is of the best possible quality.

Along with this assurance, consumers now also demand food that is produced in a manner that does not harm the environment, or jeopardize the safety and welfare of farmers, fishers, and other workers in food production and trade.

These are not new consumer concerns. The FAO and the WHO brought them to international attention in 1963, when they created the Codex Alimentarius Commission.

And, by now, we all know that these demands are not only valid – they are necessary. But for still too many small farmers, fishers, and agribusiness firms in the developing countries of the APEC, these demands constitute a difficult challenge.

Here in the Philippines, a vast number of impoverished rural folk rely on farm and fishery endeavors for their livelihood. Agriculture is, moreover, the backbone trade of our nation's economy.

For over a decade now, a substantial part of Filipino agricultural policy has been geared toward the establishment of a system that would transform free global trade into an engine for rural progress.

The larger Filipino firms involved in food production, processing, and export have already integrated the principle of good agricultural practices, or GAP, into their operations.

Today, it is among the Philippine Department of Agriculture's core objectives to promote GAP on a more inclusive scale.

We want to provide our small farmers and fishers the opportunity to compete in the global market through a GAP Program that is people-centered and globally recognized.

A particularly positive result of our involvement in international cooperation toward this end is the establishment of the ASEAN GAP, which ASEAN senior agriculture and forestry officials endorsed in a special meeting held here three weeks ago.

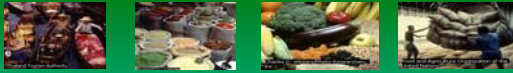
- In August of last year, also, I issued a directive that established a system by which small farmers and fishers could avail of the national GAP accreditation service.
- I had insisted, first and foremost, that the government render the service at no cost to the farmer.

That system is now in place. I am pleased to report that we continue to train GAP inspectors on a regular basis.

I am confident that, in time, all these present efforts, will bring more pleased globally competitive Filipino commodities to the international market.

I am equally certain that this gathering, which is designed to facilitate free and constructive exchange of views on GAP will help strengthen the shared commitment by which the APEC continues to prosper.

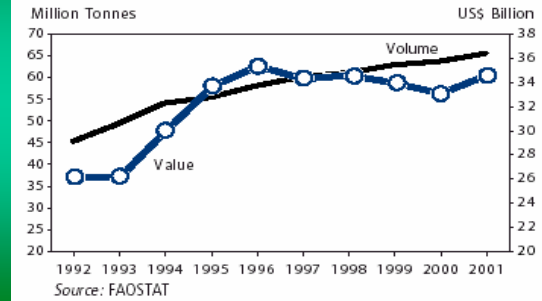
Thank you, and again, welcome.



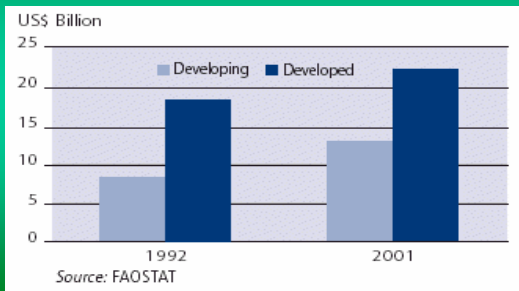
Global and Regional Forces Driving Demand for Quality and Food Safety



Horticulture and Exports



Where is it coming from?



Developing countries and exports as % of world's production

- ◊ Avocados from Chile and Mexico 53 %
- ◊ Mangoes from Mexico, Philippines and Brazil 62%
- ◊ Pineapples from Costa Rica and Côte d'Ivoire 61 %
- ◊ Bananas from Ecuador, Costa Rica and Colombia 60 %



Two drivers for quality and food safety (two drivers for GAP)

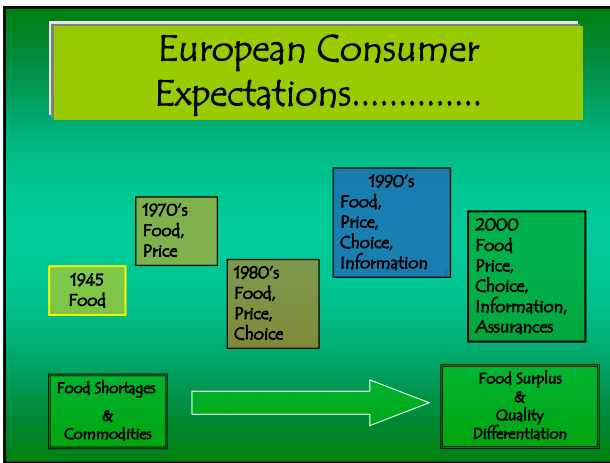
- ◊ Demands through retailers
- ◊ WTO requirements for international trading




Consumers demands



- ◊ Achieved through GAP



Good Agricultural Practices



◇ Good Agricultural Practices (or GAP) are a collection of principles to apply for on-farm production and post-production processes, resulting in safe and healthy food and non-food agricultural products, while taking into account economical, social and environmental sustainability.

International GAPs






Australia

- ◇ SQF-1000
- ◇ SQF-2000
- ◇ Freshcare



USA-Gap




USA-Good Agriculture Practices

- ◇ Module 1 – Soil and water
 - Hazards associated with prior land use, topography
 - Water source, agricultural use, and practices
- ◇ Module 2 – Organic and inorganic fertilizers
- ◇ Module 3 – Animal exclusion and pest control
- ◇ Module 4 – Worker health and safety
 - Worker Hygiene Practices
- ◇ Module 5 – Harvesting and cooling
- ◇ Traceback



Why?

- ◇ As a measure against an increasing number of outbreaks of food poisoning traced back to fresh produce

Pathogens

- *Salmonella spp.*, *Shigella flexneri*, *E. coli* O157:H7, Hepatitis A, *Cyclospora*, *Cryptosporidium*

Vehicles

- Basil, cantaloupe, coleslaw, green onions, lettuce, frozen mamey, mesclun mix, parsley, scallions, strawberries, tomatoes, raspberries, mango



Food vehicles implicated in food poisoning outbreaks in Michigan US, 1992 (Fraser et al., 1995)

Food	Percentage
Sandwich	15%
Chicken	11%
Mexican foods	10%
Salads with raw ingredients	8%

◇ Compared to: Beef (3%), Chinese foods (5%), Eggs, dairy products, (both 1.4%), Shellfish (3%)



Irish GAP's

- ◇ code of practice for the food safety in the fresh produce supply chain in Ireland, introduced
- ◇ general hazard control
- ◇ water-farm yard manure
- ◇ compost and biosolids
- ◇ hygienic practices
- ◇ safe use of pesticides and biocides.



South American GAP's

- ◇ WORKSHOP – EMBRAPA/FAO
Buenas Práticas Agrícolas
Good Agricultural Practices
Brasília, 12 - 15 Agosto / August 2002
- ◇ Based on CODEX and covering food safety from a microbial point of view
- ◇ Published by FAO 2003



EUREPGAP®

- ◇ Euro-Retailer Produce Working Group and Good Agricultural Practices
- ◇ Initially designed to encourage the adoption of commercially viable farm assurance schemes which minimise use of agrochemicals within Europe
- ◇ Now it is a standard that aims to certify safe and sustainable agricultural production



Components

- ◊ Traceability
- ◊ record keeping and internal self inspections
- ◊ Site history and site management
- ◊ Soil and substrate management
- ◊ Fertiliser use
- ◊ Irrigation
- ◊ Crop protection
- ◊ Harvesting
- ◊ Produce handling
- ◊ Waste and pollution management, recycling and re-use
- ◊ Workers health and safety and welfare
- ◊ Environmental issues
- ◊ Complaint handling



EUREPGAP® is...

- ◊ a private sector standard used by supermarkets and growers to find common ground in Europe
- ◊ not compulsory
- ◊ subject to certification
- ◊ other schemes can be benchmarked and used to gain EUREPGAP® certification



FAO (United Nation) GAP?

- ◊ Major project looking at the introduction of GAP in a number of countries in world
- ◊ Will this be the benchmark to aim equivalency with?



ASEAN countries and GAP

- ◊ Malaysia: Introduced the SALM system
- ◊ Thailand: The Q System
- ◊ Indonesia: The IndonGAP System
- ◊ Singapore: The GAP for vegetables system
- ◊ Phillipines: Currently introducing a system



ASEAN GAP Purpose

To develop an ASEAN GAP standard that will:

- ◊ Facilitate trade regionally and internationally
- ◊ Enhance harmonisation within ASEAN through having a common language for GAP
- ◊ Enhance the safety of fruit and vegetables for consumers
- ◊ Enhance the sustainability of natural resources



ASEAN GAP Scope

Commodities

- ◊ fresh fruit and vegetables – includes herbs but not high risk products such as sprouts and minimally processed

Objectives

- ◊ food safety, environmental management, produce quality, worker health and safety, sustainable food supply

Production system

- ◊ conventional cultivation and protected cropping – not organic or use of GMO



ASEAN GAP content

- ◇ Introduction
- ◇ Food Safety Module
- ◇ Environmental management module
- ◇ Worker health and safety and welfare module
- ◇ Produce quality module



Thank you !!!

GAP activities in Australian

Scott Ledger

Department of Primary Industries and Fisheries
Queensland, Australia

Delivery



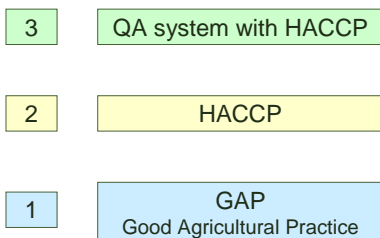
Forces driving need for GAP?

- Australian supermarkets require farmers to have 3rd party certified food safety system – started in 1997/98
- New national food safety standards introduced in February 2001 – retailers, processors and food service must ensure that produce is not contaminated
- Food safety standards for production of fresh produce to be introduced in 2007/08
- Export customer requirements – eg UK/ Europe supermarkets

Delivery



Three levels of management



Delivery



What level is required?

- No current legislative requirement except for farm processing or retail sale
- Level depends on what customer requires for their approved supplier program
- Direct suppliers to supermarkets – level 1 food safety to level 3 quality and food safety
- Indirect suppliers to supermarkets – level 1 food safety

Delivery



Incentives for adoption of GAP

- Access to markets and customers
Farmers can not supply fresh produce to major export and domestic customers without 3rd party certified GAP program
- Food safety regulations for primary production to be introduced in the future

Delivery



Adoption of GAP and QA programs

- Freshcare – 2355 farmers certified + 386 pending
- EUREPGAP – 200 farmers certified
- SQF 1000^{CM} and 2000^{CM} – 1200 supply chain businesses
- HACCP – 4000 supply chain businesses
- Woolworths QA – 570 supply chain businesses
- ISO 9002 + HACCP – 50 supply chain businesses

Delivery



Other programs

- Customer approved supplier programs
 - 2nd party certified - eg McDonalds, Golden Circle, SPC Ardmona
- Enviroveg program
 - Self assessment environmental GAP
 - Australian Vegetable Farmers Association
- Horticulture for tomorrow program
 - Guidelines for environmental assurance
 - Horticulture Australia Ltd, Dep. Agriculture, Fisheries and Forestry
- Managing farm safety
 - Farmsafe Australia

Delivery



Freshcare



GAP program for horticulture industry

- 19 owner groups – producer and wholesaler bodies
- Covers food safety, environmental management, and product specifications – OH&S and biosecurity to be added in 2007
- 3 accredited certification bodies and 21 accredited trainers
- Contact - www.freshcare.com.au

Delivery



Freshcare modules



- Management
- Chemicals
- Food safety
- Environment
- Product and handling specifications

Delivery



Management



- Training
- Internal auditing and corrective action
- Records
- Document control
- Environmental action planning

Delivery



Chemicals



- Persistent chemicals
- Obtaining, storing and disposing of chemicals
- Chemical treatments
- Chemical testing

Delivery



Food safety



- Product identification, traceability, recall
- Fertilisers and soil additives
- Water use
- Site and premises
- Equipment, containers and materials
- Cleaning and vermin control
- Personal hygiene
- Storage, ripening and transport
- Other practices

Delivery



Environment



- Fertilisers and soil additives
- Water management
- Land and soil
- Biodiversity
- Waste
- Air
- Energy
- Other practices

Delivery



Steps to Freshcare certification

1. Join Freshcare
2. Complete training
3. Implement Code of Practice
4. Initial assessment by auditor from accredited certification body
5. Certification issued by Freshcare
6. Annual compliance audit

Delivery



Freshcare costs



Year 1- approx AUD1500

- Freshcare membership
- Freshcare training
- Initial assessment
- MRL test

Year 2 onwards – approx AUD750 per year

- Freshcare membership
- Annual audit
- MRL test

Delivery



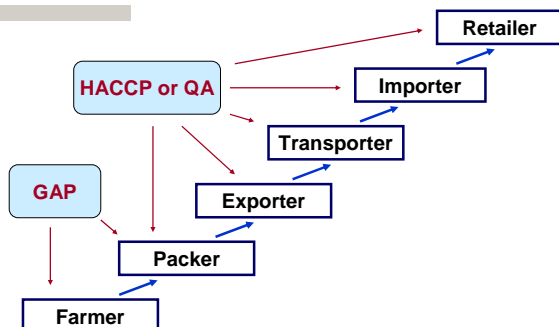
Comparative costs of certification

Certification Program	Fees (AUD/year)	Audit (AUD/year)	Other costs
Freshcare	50	300-400	Training in year 1 MRL test on one crop
SQF 1000	25-210	350-400	Training in year 1 Expert to verify system MRL test on one crop
HACCP	0-50	500-800	Training in year 1 MRL test on one crop
EUREPGAP	40-200	600-1200	Training in year 1 MRL test on all crops

Delivery



Integration of QA through supply chain



Delivery



Barriers to adoption of GAP

- Farmers confused about what is required
 - customers can differ in what they require – eg HACCP, GAP
 - multiple audits may be required – adds costs and confusion
- Cost of compliance with no price incentives
 - farmers are not paid higher prices for their produce
- Some customers do not require GAP
 - farmers can still sell produce without GAP
 - implementing GAP is not mandatory

Delivery



Strategies to encourage adoption

- Awareness created through mass media
- Financial support provided to farmers by Government
 - 50-75% of implementation cost
- Guidelines prepared to reduce confusion and improve consistency of adoption and auditing
- Accredited food safety training course developed
 - 10,000 farmers trained across Australia
- Freshcare supported by Horticulture Australia Ltd, industry organisations, Government

Delivery



Important messages

- Strong driving force needed to encourage adoption
- GAP is an appropriate level of management for farms
- GAP needs to integrate food safety, environmental management, worker health, safety and welfare, and produce quality – start with food safety
- Education needed to underpin adoption

Delivery



FDA GAPs: Produce Safety Action Plan

Capacity Building Seminar on Good Agricultural Practices
for Developing APEC Economies
September 19-21, 2006

Cecilia P. Gaston
Exponent, Inc., USA

(Prepared with the assistance of
Michelle A. Smith, Ph.D.
CFSAN, U.S. FDA)

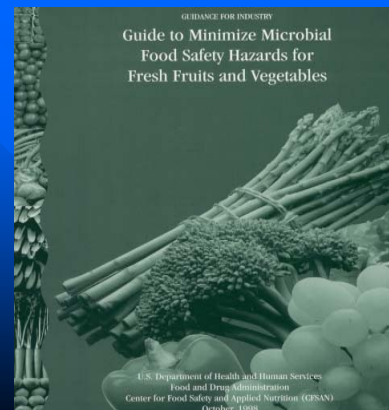
Fresh Produce - Concerns

- Grown in a non-sterile environment
- Opportunities for contamination
- Likely to be consumed raw



Chronology of Produce Activities

- Development and implementation of the Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables (GAPs guide)
- Information/Experience
 - Microbiological surveys
 - Foodborne illness outbreak investigations
 - Farm investigations
- Produce Safety Action Plan
- Implementing the Action Plan



The Guide

- Broadscope - practices common to the growing, harvesting and packing of most fresh produce consumed in the U.S.
- Risk reduction, not elimination



2004 Produce Safety Review

- 1998 GAPs guide well received and widely adopted
- Guidance/training available in multiple languages
- Basis for International Codex Standard for Primary Production of Fresh Produce & others
- Findings from outbreak investigations validate the areas of concern
- Self-audit check lists, 3rd party auditors, and buyer specs further promote GAPs

However.....

Fresh produce outbreaks continue. Why?

- Surveillance continues to improve
- Increased consumption, new products, complex distribution systems
- Increased attention on fresh produce
- Continued need for education and outreach
- Need for more specific recommendations

Food Categories 1996 - 2005

Category	Outbreaks	Illnesses
Processed Foods	43	3,026
Produce	63	8,040
Sprouts	25	1,565
Seafood	120	2,567
Eggs	234	6,572

1996-2005 Produce Outbreaks

Tomatoes	10	Green onions	3
Lettuce	10	Mango	2
Romaine lettuce	4	Almonds	2
Mixed lettuce	2	Parsley	2
Cabbage	1	Basil	6
Spinach	1	Green grapes	1
Cantaloupe	7	Snow Peas	1
Melons	1	Squash	1
Honeydew melon	2	Unknown	2
Raspberries	5		

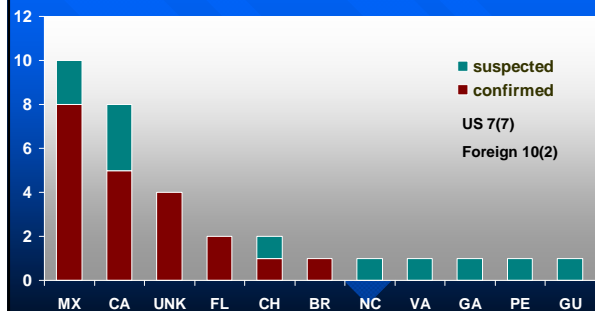
Fresh Cut Produce Outbreaks 1998-2005

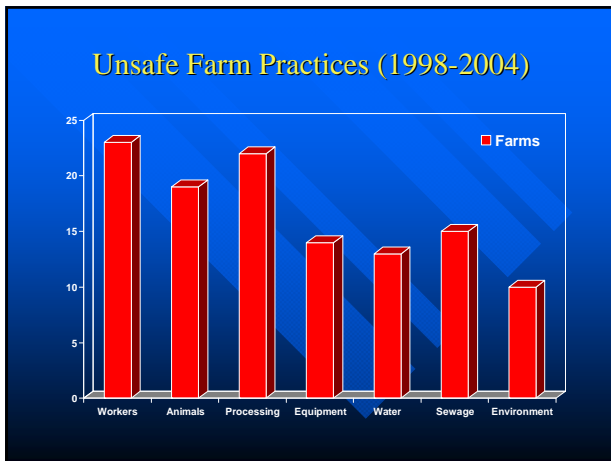
- Romaine lettuce 2
- Lettuce 4
- Mixed lettuce 1
- Spinach 1
- Roma Tomatoes 2
- Tomatoes 1
- Mixed melons 1

Recurring Pathogen/Commodity Combinations

- *S. poona* and *S. anatum* and cantaloupes
- *E. coli* O157:H7 and lettuce and spinach
- *Salmonella* and mangoes and tomatoes
- Hepatitis A and green onions
- *Shigella sonnei* and parsley, cilantro, and culantro

Outbreak Investigations 1998-2002 Source by Country/State





Foodborne Illness Investigations - Findings

- In many cases – the most likely causes of contamination are preventable.
- Many investigations fail to identify likely route of contamination even if traceback implicates a particular point in the supply chain.

Produce Safety From Production to Consumption: 2004 Action Plan to Minimize Foodborne Illness Associated with Fresh Produce Consumption
October, 2004
<http://www.cfsan.fda.gov/~dms/prodpla2.html>

Produce Safety Action Plan

Overarching Goal: Minimize foodborne illness associated with the consumption of fresh produce

- Priority for FDA - CFSAN
- Builds upon existing programs
- Covers fresh fruits and vegetables from farm to table

Produce Safety Action Plan

General Objectives:

1. Prevent microbial contamination
2. Minimize public health impact when contamination occurs
3. Improve communication
- w/ producers, preparers, consumers
4. Facilitate and support research

Produce Safety Action Plan

- For each objective, the Action Plan identifies steps (or actions) that could contribute to achieving that objective
- The most effective strategy is one that approaches the problem from several different angles
- The Action Plan anticipates that food safety partners in both the public and private sectors will participate

Produce Safety Action Plan

Objective 1. Prevent microbial contamination

- Guidance & Regulations
- Education Outreach
- Facilitating Implementation

Prevent microbial contamination

Guidance

- FDA's Draft Fresh-cut Guidance March 2006
<http://www.cfsan.fda.gov/~dms/prodgui2.html>
- Industry led Commodity Specific Supply Chain Guidance
 - Melons, lettuce & leafy greens, tomatoes
<http://vm.cfsan.fda.gov/~tcjm/lettsup.html> &
<http://vm.cfsan.fda.gov/~tcjm/melonsup.html>
 - Green onions and herbs (in draft)
<http://www.cfsan.fda.gov/~dms/tomatsup.html>

Education Outreach

- Raise awareness & promote adoption of existing GAPs/GMPs and new guidance as it becomes available

Produce Safety Action Plan

Objective 2. Minimize public health impact when contamination occurs

- Facility inspections & surveys, increased monitoring
- Improve and refine regulatory follow-up when insanitary conditions are found
- Increase speed of epidemiological, traceback, and environmental investigations

Minimize public health impact when contamination occurs

Increase speed of environmental investigations and the quality of information obtained

- Farm investigation course
 - 2000, 2002 & June 2006
- Guide to Produce Farm Investigations
http://www.fda.gov/ora/inspect_ref/igs/iglist.html

Minimize public health impact when contamination occurs

Facility inspections & surveys; improve and refine regulatory follow-up when insanitary conditions are found

- Continue import & domestic sampling assignments
- Outbreak investigations
- Example: Lettuce Initiative

Lettuce Outbreaks (1995-2005)

	Outbreaks	Cases	Deaths
1995	3	105	
1996	2	68	
1997	2	41	
1998	2	6	
1999	5	105	
2000	0	0	
2001	0	0	
2002	2	53	
2003	3	48	2
2004	4	180	
2005	1	32	

Lettuce Initiative - Components

Information gathering -

Assessment assignment:

- Assessment at farms and packing facilities
- Inspect fresh-cut processing facilities
- For cause sampling

Develop and/or refine guidance and policy;
identify research needs to minimize future outbreaks

Lettuce Initiative - Components

Communication – Two phases:

Phase 1.

August 24 Lettuce Safety Forum - WIFSS

- Communicate FDA and State's interest in enhancing the safety of lettuce, and
- How this collaborative initiative can contribute
- Status research and other initiatives

Phase 2.

- Alert consumers early and respond rapidly if an outbreak occurs

Lettuce Initiative

- Supports goals of Produce Action Plan
- Proactive – before an outbreak
- Visibility – demonstrates commitment & concern
- Risk based – season and geographic region associated with past outbreaks
- Collaborative – with CDHS and CDFA, in cooperation with industry & other partners

Produce Safety Action Plan

Objective 3. Improve communication w/ producers, preparers, consumers

- CA tour for public health officials, July 2005
- PAIR calls, quarterly
- Ongoing meetings between FDA & state counterparts & industry
- April 26 Dialog with FDA, in conjunction w/ 2006 Fresh-cut Expo
- Lettuce Initiative – August 24, 2006 Lettuce Safety Forum for discussion

Produce Safety Action Plan

Objective 4. Facilitate and support research

- Identify research likely to make the most significant contribution to safety
- Assess relative risk for specific areas of concern
- Develop risk-based approaches to prevent contamination and/or effective interventions to address contamination once it has occurred
- Promote technology transfer of research findings


Produce Safety Research

Increasing intramural and extramural research activities by several research agencies and consortiums

- Detection of pathogens on produce
- Microbial ecology of produce
- Sources of contamination
- Growth of pathogens on produce
- Assessment of potential intervention technologies
- Risk assessment

Key to Success: Collaboration:

Key to the success of the Produce Safety Action Plan will be collaboration with food safety partners, industry, consumer groups and all our stakeholders.



GAP Activities Around the World: EUREPGAP

Sathianathan Menon
qa plus-asia pacific sdn. bhd
Kuala Lumpur, Malaysia

Capacity Building Seminar on Good Agricultural Practices (GAP)
for Developing APEC Economies
Manila, Philippines
19-21 September 2006



qa plus asia pacific sdn bhd

Company profile

- Registered company in Kuala Lumpur
- Associate business partner **qa plus pty ltd**, based in Melbourne, Australia
- Provides valued technical and advisory services in the area of food safety and quality, risk management, environmental management, technological advancement including business improvement and quality management systems
- Registered associate member of **EUREPGAP** and the sole representative / facilitator in Malaysia




EUREPGAP[®] FoodPLUS
The Global Body for EUREPGAP[®]

“The Global Partnership for Safe and Sustainable Agriculture”


“The Global Pre-Farm Gate Standard”












EUREPGAP

- EUREPGAP –started as an initiative of the retailers in 1996-aim was to agree on the development of harmonized Good Agricultural Practices and their verification for all sources of supply
- A private sector body, that sets voluntary standards for the certification of agricultural products around the globe
- It is a not for profit organization supported by FoodPLUS, registered in Germany

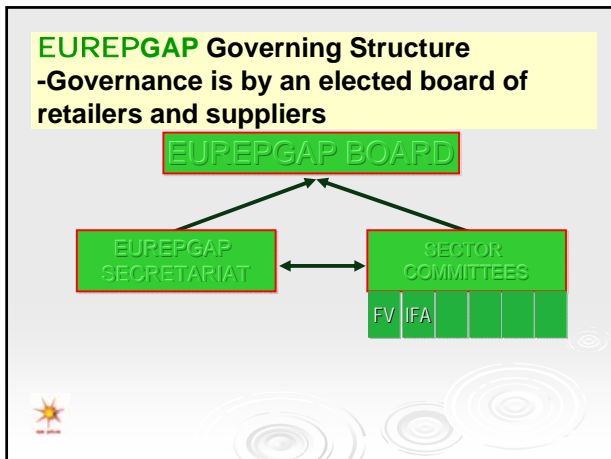
Development of **EUREPGAP-Drivers**

- Driven by the desire to reassure customers
- European retailers impose their own third party certified standards on suppliers
- Retailers perform inspections or audits themselves based on their own standards
- Led to inconsistency in audit content and results, often leading to confusion and conflict at producer level
- Multiple standards-duplication of audit activities and increase producer cost
- High variance of auditor qualification

EUREPGAP Objectives

- ✓ Recognise existing best practice through mutual recognition : “Benchmarking”
- ✓ Enhance the credibility of “ all farm assurance” by re-enforcing robust processes for non-compliances,ensuring auditor competence and harmonising interpretation of technical criteria
- ✓ Encourage non-participating producers to embrace farm assurance



EUREPGAP Mission:
Safety and Sustainability of agricultural products for consumers

Consumer Focus on EUREPGAP
 '3 in 1'

- Food Safety / HACCP based
- Environmental issues / ICM
- Social Standards / Worker Welfare

EUREPGAP Protocol – defines the elements of Good Agricultural Practice (GAP)

It addresses topics that include

- Hazard Analysis and Critical Control Point (HACCP)
- Integrated Crop Management (ICM)
- Integrated Pest Management (IPM)
- Quality Management System (QMS)
- Worker Health, Safety and Welfare
- Environmental Pollution
- Conservation Management

EUREPGAP Integrity

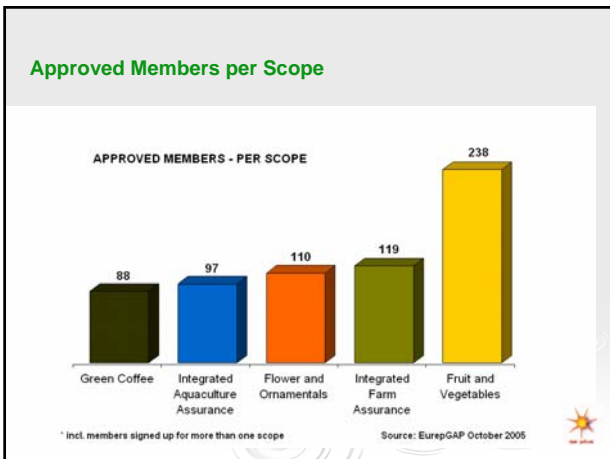
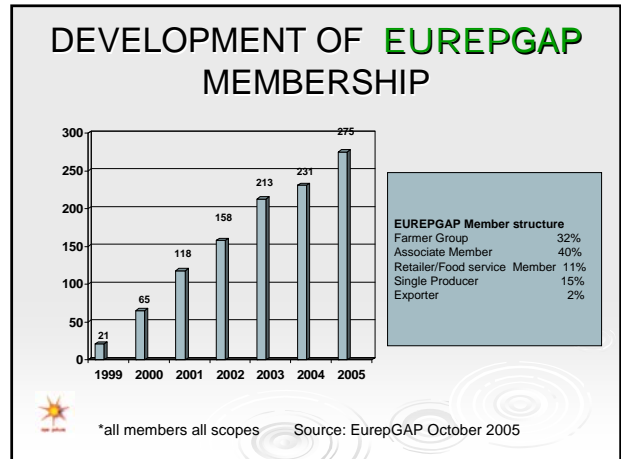
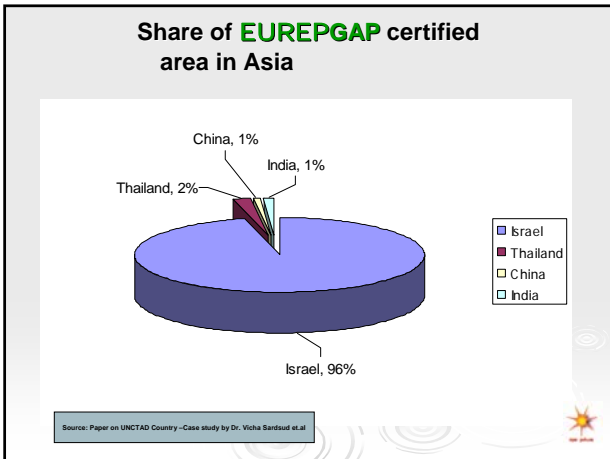
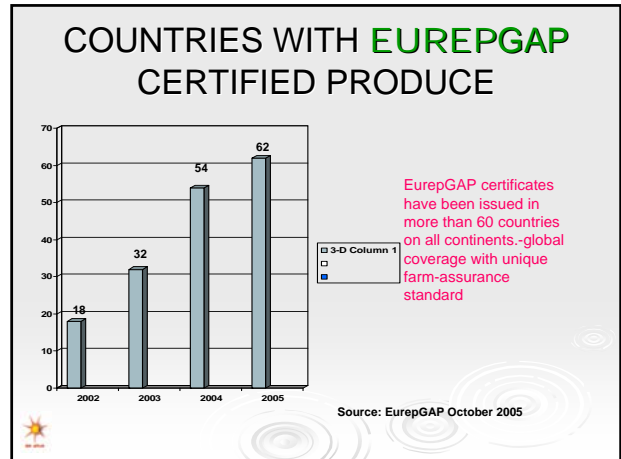
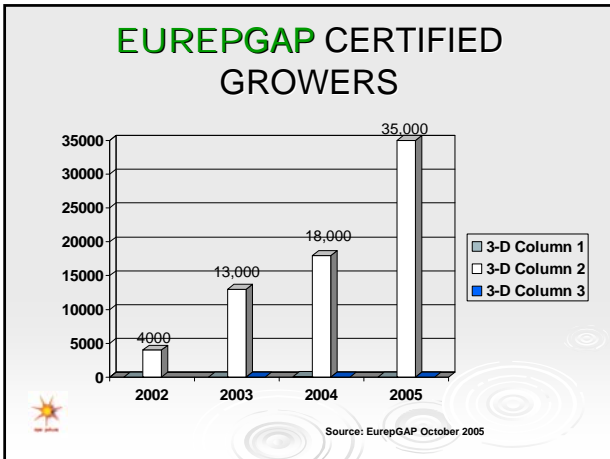
- Certification is by Independent Certification Bodies (CB) approved by EurepGAP
- Certification according to ISO Guide 65
- CBs are required to take part in harmonization
- Use auditors and inspectors qualified according to criteria agreed with EurepGAP
- There are presently more than 100 (May 2006) approved CBs worldwide which can provide certification

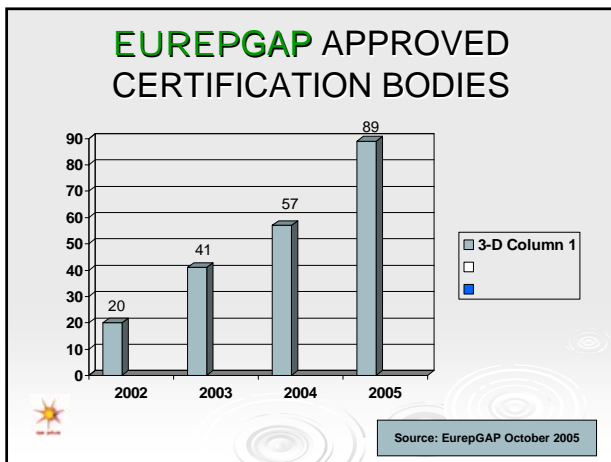
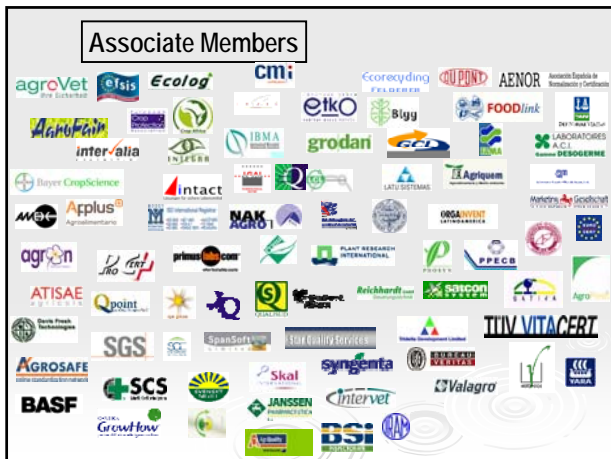
INTERNATIONAL RECOGNITION

- Owners of Good Agricultural Practice (GAP) standards worldwide can seek to demonstrate equivalence with EurepGAP through an independent Benchmarking process
- Countries with equivalent or applicant schemes: Austria, Chile, China, France, Denmark, Germany, Japan, Kenya, Mexico, The Netherlands, New Zealand, Spain, Sweden, Switzerland, UK, Uruguay

EUREPGAP Reference Standards

- **EUREPGAP** Fruit and Vegetables Version 2004
- **EUREPGAP** Protocol for Flower and Ornamentals
- **EUREPGAP** Protocol for Integrated Farm Assurance-Beef & Lamb, Dairy, Pigs, Poultry, Combinable Crops
- **EUREPGAP** Integrated Fish Assurance Standard-Salmon, Tilapia and shrimps
- **EUREPGAP** Tea Standard launched on 31st March 2006





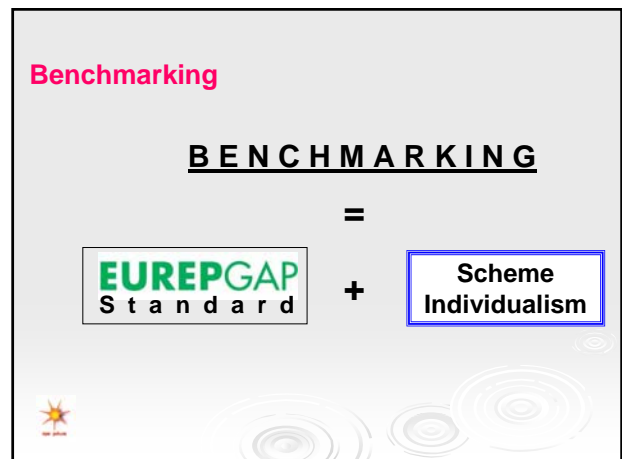
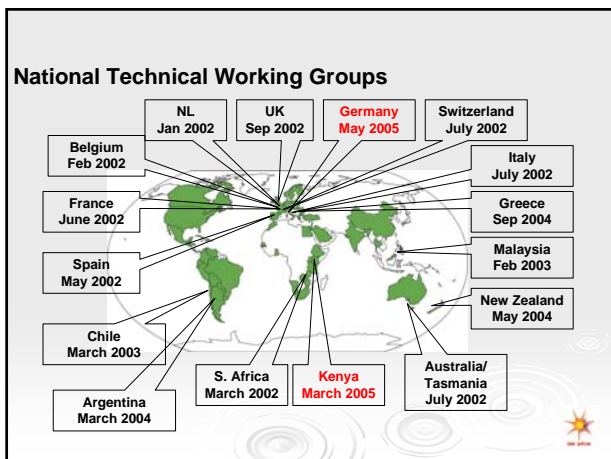
National Technical Working Groups Scope & Objectives

Scope

- Harmonization of the EurepGAP CPCC and development of implementation guidelines as a preparatory input to EurepGAP TSC

Objectives

- Assisting the implementation process
- Facilitating the harmonization process as input to the TSC
- Preparing proposals to the respective TSC on specific interest area interpretation
- Interpretation and translation of EurepGAP documents



Benchmarking

Objective

- To recognize those certification schemes that can demonstrate equivalent outcomes to the EUREPGAP schemes
- A procedure for benchmarking has been developed
- JAS-ANZ awarded the contract in 2003 and recently DAP

Benefits of Benchmarking

- Recognition of existing schemes not requiring adoption of another GAP standard
- Global harmonization in primary production and GAP Practices
- Facilitation of Global Trade
- Continue to act local
- Encourage continuous improvement



Benchmarking process

1. Application
2. Preliminary Technical Review (PTR)
3. Peer Review (PR)
4. Independent Technical Review (ITR)
5. Independent Witnessed Assessment (IWA)
6. Technical Standards Committee (TSC) review
7. Notice of intent to approve (NIA)
8. Provisional Approval (PA)
9. Approval (A)



EUREPGAP Benchmarked Schemes

Applicant Scheme	Scope	PTR	PR	ITR	IWA	TSC	NIA	PA	A
Mexico Supreme Quality GAP	FV		X						
Swiss GAP F & V	FV		X						
Danish GAP Producers	FV		X						
Swiss GAP F & D	FD		X						
Swiss GAP F & V	FV			X					
OS GAP	FV				X				
British Ornamental Plant Producers (BOPP)	FD					X			
LINE 15500	FV						X		
New Zealand Fresh Producer Supplier Program (VEGFED)	FV							X	
Milk Doox	FV								X
Artisanal Produce	FV					X			
China GAP	FV							X	
KFC Silver Standard	FD								X
NatureOne	FV							X	
AMA Stamp of Quality Control Device	FV								X
NatureOne	FV								X
Utz Kapeh Certified Responsible Coffee	CO								X
Certified Natural Meat Program (CNMP)	IFA	X							
MPS GAP Floriculture	FO								X
Kenya GAP	PV/FO	X							
China GAP	FV/FA	X							



Source: EUREPGAP 6th Global Conference Paris 2005

EUREPGAP Certification Options

OPTION 1
Individual Certification
EUREPGAP

OPTION 2
Group Certification
EUREPGAP

OPTION 3
Individual Certification
Benchmarked Scheme

OPTION 4
Group Certification
Benchmarked Scheme



Certification Options



Option 1/3: Individual Farmer

- Farmer is certificate holder
- Annual external inspection
- Farmer self assessment



Option 2/4: Farmer Group

- Farmer group is certificate holder
- Annual external inspection
- Individual farmer
- Quality Management System
- Farmer Group Internal Inspection
- Farmer self assessment



Certification: Option 1

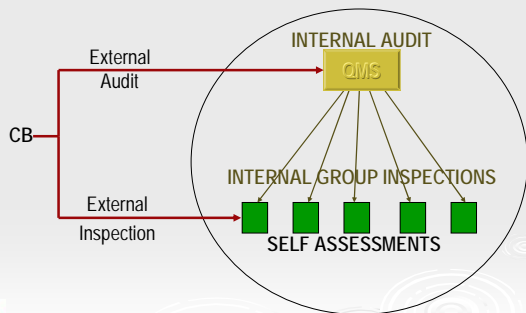
CB
External Inspection

Farmer
Self Assessment

FARM



Certification: Option 2



EUREPGAP Impact: Kenya

15.3.2005

KenyaGAP starts the process to benchmark with EurepGAP in Fruits & Vegetables

- EurepGAP and Kenya's horticultural industry agree on a common approach in getting equivalence between KenyaGAP and EurepGAP
- FPEAK (Kenya Fresh Producers Exporters Association) will continue to stem the process of revising KenyaGAP and benchmarking it with EurepGAP
- Once benchmarking is finalized, KenyaGAP will be a suitable code of practice for use in all African and other southern hemisphere countries where smallholders contribute to exports.

EUREPGAP Impact :JAPAN

27.4.2006

Japan Publishes JGAP and signs Agreement to Benchmark to EurepGAP in Fruits and Vegetables

- Japan announced start of its journey towards Global Harmonization of GAP at conference held on 27/28 April 2006
- Dr. Kristian Moeller signed formal agreement which lays foundation of Benchmarking process of JGAP to EurepGAP
- Aim is to create a common ground for national harmonization process within Japan which will reduce the current duplication of GAP standards and improve consumer confidence in food products

EUREPGAP Impact: MEXICO

25.5.2006

MEXICO SUPREME QUALITY Achieves EurepGAP Equivalence in Fruit and Vegetables in May 2006

- Mexican farm Assurance Scheme: Mexico Supreme Quality-GAP (MSQ-GAP) successfully achieved equivalence to EUREPGAP
- this initiative is part of the Mexican Government to improve access for their products to international markets including Europe.

EUREPGAP Impact: Ghana

Ghana to use EurepGAP to further integrate Smallholders into Pineapple Supply Chain

- Launched in Accra on 24th May 2006 of a major multi-stakeholder project aimed at integrating small scale farmers into the global supply chain
- EurepGAP's assistance on Option 2 Group Certification program aimed at coordinating additional numbers of small scale producers into groups which can act more competitively to access major international markets.

EUREPGAP Impact: China

ChinaGAP ready to start EurepGAP Benchmarking procedure in Fruit and Vegetables and Integrated Farm Assurance

- CNCA, The Certification and Accreditation Administration of the People's Republic of China signed memorandum of understanding with EurepGAP on 11th April 2006 in Beijing.
- Agreement will initiate the formal benchmarking procedure and covers the rules on the surveillance of ChinaGAP (launched in 2005) after achieving full recognition.

EUREPGAP Impact: Malaysia

- ▶ Farm Accreditation Scheme of Malaysia (SALM) is closely referenced to EurepGAP standard for Fruits & Vegetables
- ▶ MS-GAP is closely referenced to EurepGAP
- ▶ Plans in the pipeline for both schemes to be benchmarked to EurepGAP to enhance international recognition and acceptability

December 2004: First Oil palm Plantations EurepGAP Certified in Malaysia

3 oil palm estates, covering approximately 8,500 hectares based in West Malaysia were certified under the Fruit & Vegetable scope in December 2004. First ever plantation estates in the world



Creating Awareness-Activities by qa plus

EUREPGAP Asia 2004

8-9th June, 2004
Mutiarra Hotel Kuala Lumpur Malaysia



CONFERENCE ORGANISED BY
Department of Agriculture,
Ministry of Agriculture and Agro-based
Industries, Malaysia
And
qa plus asia-pacific sdn bhd

Moving Ahead With Safe and Sustainable Agriculture



Workshop on Good Agricultural Practice and Food Safety

-Implementing EUREPGAP in Thailand

25th - 26th November 2005
Royal Orchid Sheraton Hotel, Bangkok, Thailand

Project Funded By
EU-Thailand Co-operation Small Project Facility Grant

And
United Nations Conference for Trade and Development (UNCTAD)
Organized By
The International Institute for Trade and Development (ITD)

Market Access through Sustainable Agriculture and Food Safety

CONCLUSIONS

EUREPGAP BENEFITS...

- Contributes to sustainable agricultural production on the Global level.
- Management improvement of farms.
- Value added for products.
- Integrity building of global certification system
- Embraces small scale farming to market access.
- Harmonizes core buyer requirements
- Cost effective solution for whole industry



THANK YOU

FOR YOUR KIND ATTENTION

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The Good Agricultural Practices (GAP) Program





What is meant by Good Agricultural Practices Approach?

Good Agricultural Practices (GAP) approach applies recommendations and available knowledge to address environmental, economic and social sustainability from on-farm production and post-production processes resulting in safe and healthy food and non-food agricultural products





Guidelines on the Certification of Good Agricultural Practices (GAP) for Fruits and Vegetable (FV) Farming






1. Objectives of Certification

- ◊ To increase the market access of horticultural products both in the local and foreign markets
- ◊ To empower farmers to respond to the demands of consumers that specific criteria to achieve food safety and quality be met
- ◊ To facilitate farmer adoption of sustainable agricultural practices


1. Objectives of Certification


- ◊ To uplift GAP-FV farmers profile as member of the nationally recognized list of vegetable farmers who are setting the benchmark for the production of safe and quality fruits and vegetables
- ◊ To enable consumers exercise the option of buying quality fruits and vegetable from traceable and certified sources

2. Scope of Guidelines

This establishes the rules applied by the Department of Agriculture (DA) for granting, maintaining and withdrawing Good Agricultural Practices (GAP) Certificate to individual growers or farms in the fresh fruit and vegetable sector or to their Produce Marketing Organizations (PMOs) that market and or trade the produce






3. Administrator

Chairperson: Bureau of Agriculture and Fisheries Product Standards (BAFPS)

Co-chairperson: Bureau of Plant Industry (BPI)

Members: Fertilizer and Pesticide Authority (FPA)
Bureau of Animal Industry (BAI)
Bureau of Soil and Water Management (BSWM)



GMA-High Value Commercial Crops (HVCC) Program
Representative, Private Sector
Representative, NGO/PO
Representative, Academe



3. Administrator

3.2 Tasks



- ◊ Review and approve applications
- ◊ Endorse to the Secretary a list of applicants to be issued a Good Agricultural Practices (GAP) Certificate
- ◊ Review and approve any changes in standards and fees
- ◊ Hear appeals

3. Administrator

3.2 Tasks




- ◊ Annually review investigations of complaints about abuses in the production and sale of products that do not adhere to GAP
- ◊ Determine penalties for abuse of standards or mark
- ◊ Negotiate satisfactory settlement of cost and reimbursement for the investigation cost

3. Administrator

3.3. Secretariat


The Bureau of Agriculture and Fisheries Product Standards (BAFPS) shall act as secretariat of the GAP Certification Committee

3. Administrator

3.4. Inspectors

The inspectors shall be composed of identified technical personnel duly designated by the Directors of the Bureau of Plant Industry (BPI), Fertilizer and Pesticide Authority (FPA), Bureau of Animal Industry (BAI) and Bureau of Soils and Water Management (BSWM)





4. Application

4.1. Nature of Applicants

The Department of Agriculture (DA) Certification Scheme shall be based on three (3) options, depending on the type of organization that is requesting certification


- ◊ Individual grower
- ◊ Produce Marketing Organization (PMO)
- ◊ A company/corporation that applies a national or company scheme





4. Application


4.2. The applicant shall submit the completed application form to the Secretary of the Department of Agriculture (DA) through the Good Agricultural Practices (GAP) Certification Committee



4. Application

4.3. Supporting Documents. Accompanying the accomplished form are:


- 4.3.1 Farm/Organization profile
- 4.3.2 Company/corporation Certificate of registration
- 4.3.3 Track record of the farm or company/corporation
- 4.3.4 For Produce Marketing Organizations (PMOs). The PMOs must illustrate that it has 100% control of the registered growers of the group requesting for certification, all individual growers operate under the same management systems and adhere to the Department of Agriculture (DA) Code of Good Agricultural Practices (GAP)



4. Application

4.4. Fees


4.4.1. The Certification Committee shall establish the guidelines to fix reasonable fees and charges to cover the administrative expenses to be incurred during the evaluation, inspection and audit.



4. Application

4.4. Fees


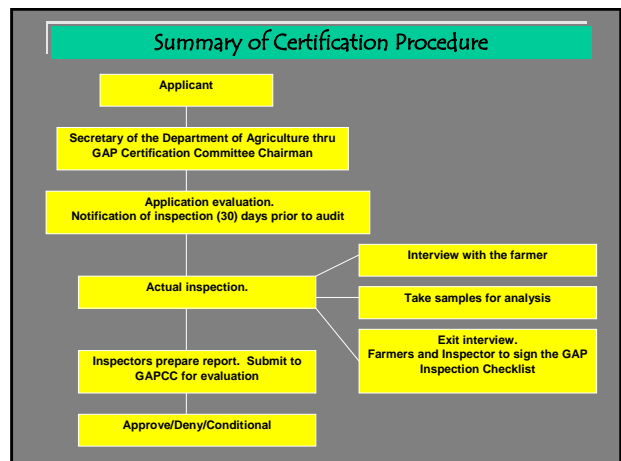
4.4.2. The charge for the first certification will cover administrative expenses incurred by the Committee during evaluation and audit expenses of inspectors.



4. Application

4.4. Fees

4.4.3. Re-certification requires the re-audit of farm on the GAP-FV guidelines and will be conducted one (1) month prior to the expiry of the existing certification.



5. Certification



5.1. Audit/Inspection

5.1.1 After the Certification Committee has evaluated the application, the Committee will notify the farm within thirty (30) days on the farm audit date prior to the certification or the renewal of the application

5.1.2 The inspector may take samples of water, soil, plant tissue, plants etc. for testing. A receipt will be given to the producer; the producer will not charge the GAP Program for the sample taken. The applicant will pay the cost of testing, and the applicant will receive a copy of the analysis



5. Certification



5.1 Audit/Inspection

5.1.3 Inspectors shall conduct an "exit" interview with the applicant or authorized representative upon completion of the inspection process. The inspector shall cover all potential problem areas noted on the inspection form



5. Certification



5.2. Issuance of GAP Certificate

5.2.1. The awarding of GAP-FV Certification is based upon compliance set in the Code of Good Agricultural Practice (GAP) pertaining to farm structure, environment and maintenance, farming practices and farm management during farm checks and the diligent observation of the regulations of GAP-FV certification



5. Certification




5.2. Issuance of GAP Certificate

The compliance criteria include:


5.2.1.1 Compliance to the Code of Practice of Good Agricultural Practice (GAP)

5.2.1.2 Implementation of a transparent and traceable system to keep track of safe and quality vegetable production from sowing to harvest/packaging

5.2.1.3 Documentation of farm management to help trace the history of farm produce. The farm must also identify a coordinator to represent the farm in the certification matters. The farm records must be kept for two (2) years. New farm applying for certification must have three (3) months of farm records




5. Certification




5.2. Issuance of GAP Certificate

5.2.2. Upon the review of the inspection report, the GAP Certification Committee shall approve, deny or place an application in pending. If placed in pending or denied, the Chairperson will have fifteen (15) days to notify the applicant



5. Certification



5.2. Issuance of GAP Certificate

5.2.3. Upon approval of application, the report of the GAP Certification Committee together with the recommendation to issue GAP Certificate to the applicant shall be endorsed to the Office of the Secretary of the Department of Agriculture for approval



5. Certification



5.2. Issuance of GAP Certificate

5.2.4. After the Secretary of the Department of Agriculture has conceded, the GAP Program Certification Committee shall assign an unequivocal permanent registration number and issues a GAP Certificate

5.2.5. The GAP Certification award entitles the applicant to use an official mark "Good Agricultural Practice for Fruits and Vegetable Farming" in accordance with the provision set out herein



6. Renewal of Good Agricultural Practices (GAP) Certificate

6.1. Good Agricultural Practices (GAP) Program participants shall renew GAP Certificate by submitting a new application three (3) years after it has been issued. Application for renewal shall be done one (1) month prior to the anniversary date of the certificate

6.2. Upon receipt of the renewal request, a new certificate shall be issued and an inspection shall be performed within the following thirty (30) days, preferably during the growing or packing season




7. Advertisement

7.1. The "Good Agricultural Practice for Fruits and Vegetable Farming" Mark is an official Mark to be put on fruits and vegetables produced by certified farms. It is an offense for any farm or company to use the Mark to advertise the farm fruits and vegetables not produced by the farm or when farm is not certified


7.2. Certified farms are allowed to advertise with the Mark. This privilege will be withdrawn in the event of non-compliance with the regulations and guidelines





7. Advertisement

7.3. The Mark may be used on letterheads of the company and in advertisement materials such as brochures and packaging bags for promotion of the farm and must adhere to the given specifications



7.4. All materials containing the Mark shall be submitted to GAP Certification Committee for approval in their use and release to the public

8. Revocation of GAP Certificate




Certified farms must observe and comply with the GAP Certification Guidelines. Farms must comply with all major criteria as specified in the Code of Good Agricultural Practice. Non-compliance with the Code of GAP shall result in the loss of approval. Failure to comply with any part of the guidelines may involve fines, suspension or withdrawal of award, which will be publicly announced

9. Confidentiality

All employees, contractors, and committee members must adhere to the principles of confidentiality. Information submitted by applicants for approval will not be released to the public, including production practices, ingredients, customer list, complaint log, etc. without written permission of the applicant





9. Confidentiality

However, the following information may be released

- 10.1. the name, address and telephone number of the applicant
- 10.2. to confirm whether or not the applicants operation was approved on a specific date
- 10.3. any information to comply with a court order
- 10.4. any information to comply with a request from the GAP Certification Committee investigating an alleged complaint



10. Conflict of Interest

Conflict of interest is defined as having an economic interest with a producer or packer under review for approval one year prior to, during or one year after work or employment was concluded. Staff, contractors and committee members with a conflict of interest must make the conflict known and not participate in discussion or decisions regarding the producer or packer under review



11. Additional Regulations

Other regulations may be introduced and notified when they become necessary to ensure production of safe and quality vegetables in certified farms



12. Effectivity

This Order shall take effect fifteen (15) days after its filing with the UP Law Center



GAP INSPECTION CHECKLIST (GAP-02)



Objectives of Farm Inspection

The main objective of the farm audit or inspection is to ensure that those farms applying to be members of the nationally recognized list of vegetable farmers are adhering to good agricultural practices.

Aspects of Inspection

The main aspects of the farm inspections are as follows:

- ❑ Farm location
- ❑ Farm structure
- ❑ Farm environment (soil/nutrients)
- ❑ Farm maintenance (hygiene and cleanliness)
- ❑ Farming practices/methods/techniques (pesticide and fertilizer application, pest and disease management, postharvest handling)
- ❑ Farm management (farm records, traceability, staff training)

I. Farm Location



- ◇ Suitability for agricultural land use
- ◇ History of prior use
- ◇ If possible, environmental impact assessment
- ◇ Improvement measures

II. Farm Structure



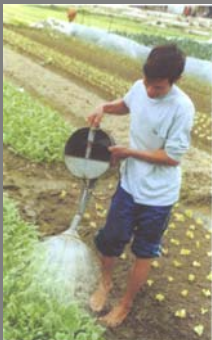
- ◇ Cultivation, storage and packing areas
- ◇ Storage facilities (incl equipment)
- ◇ Irrigation system
- ◇ Plots demarcated and labeled
- ◇ Waste disposal facilities
- ◇ Fences

III. Farm Environment-Soil



- ◇ analysis for heavy metal contaminants
- ◇ Soil renewal
- ◇ Records of heavy metal analysis/soil renewal treatment

III. Farm Environment-Water



- ◇ 1° and 2° source of water identified
- ◇ may identify topography (relate with water flow)
- ◇ take note of the physical appearance, microbial quality of source of water

IV. Farm Maintenance



- ◇ animal proof or pest control system should be implemented
- ◇ maintenance of packing area/shed
- ◇ toilets provided for farm workers – should be maintained

V. Farming Practices– Use of pesticides



- ◊ trained pesticide applicator
- ◊ registered pesticides
- ◊ pesticide labels
- ◊ observe recomms in the label (application and PHI)
- ◊ storage area – structure (spills), lock & key
- ◊ records of purchase, application & disposal (inventory)
- ◊ disposal of pesticide and pesticide containers (no recycling of containers)
- ◊ spraying equipment maintenance
- ◊ use of good quality water
- ◊ NO COCKTAILS OF PESTICIDES

V. Farming Practices– Use of fertilizers



- ◊ NO HUMAN WASTE OR RAW MANURE
- ◊ clean equipment that comes in contact with untreated manure
- ◊ complete record of fertilizer preparation
- ◊ natural fertilizer – fully decomposed; records of heavy metal analysis
- ◊ storage area – separate from pesticides; isolated from packing areas
- ◊ hydroponic system – record of nutrient stock & heavy metal analysis

V. Farming Practices– Other agrochemicals



- ◊ separate storage from fertilizer and pesticides
- ◊ apply according to label
- ◊ keep in original packing/bottles
- ◊ properly labeled
- ◊ record of purchase, application and disposal

V. Farming Practices– Pesticide and disease management



- ◊ Integrated Pest Management (IPM) system
- ◊ Record (i.e. location of traps, etc.)

V. Farming Practices– Harvesting



- ◊ protective clothing (gloves, etc.)
- ◊ washing facility for the produce – source & quality of water
- ◊ sanitizing agent
- ◊ containers for harvesting the produce
- ◊ storage of produce before transporting to packaging center

V. Farming Practices– Packaging



- ◊ protective clothing (gloves, etc.)
- ◊ packaging area – ventilation
- ◊ washing facilities for farm workers – source of water
- ◊ toilet facilities for farm workers
- ◊ containers used during packing
- ◊ elevation of packing containers
- ◊ in case of retail packed produce, non-toxic & clean packaging materials
- ◊ packaged produce – labeled and sealed

V. Farming Practices–Cold Storage



- ◊ cold storage facilities regularly maintained & sanitized
- ◊ temperature & humidity regularly checked
- ◊ check microbial quality of air
- ◊ check microbial quality of water

VI. Farm Management



- ◊ Keep all records of farming practices (incl staff training)



UPDATES ON GOOD AGRICULTURAL PRACTICES (GAP) CERTIFICATION FOR FRUITS AND VEGETABLES



APPROVAL OF ADMINISTRATIVE ORDER # 25 s. 2005 ON GOOD AGRICULTURAL PRACTICES (GAP) CERTIFICATION FOR FRUITS AND VEGETABLES

The Administrative Order # 25: Guidelines on Certification of Good Agricultural Practices (GAP) for Fresh Fruits and Vegetable Farming was signed by Secretary Domingo F. Panganiban on 5 August 2005.



INSPECTION MANUAL FOR THE GAP PROGRAM

The Inspection Manual, that will be used by the inspectors, was drafted and finalized on August 2005

- Inspection Methods and Procedures
- Inspection Forms - for the Inspectors
- Guidelines for the Preparation of Reports of Farm Inspections
- Forms for the Corrective Actions



COMPOSITION OF THE GAP CERTIFICATION COMMITTEE



Special Order # 202 s. 2006 was signed specifying the composition of GAP Certification Committee.



COMPOSITION OF THE GAP CERTIFICATION COMMITTEE



Special Order # 201 s. 2006 was signed designating technical personnel from BAI, BPI, FPA and BSWM as National and Regional Inspectors.

TRAINING OF INSPECTORS



In 25-26 July 2006, a Training of Inspectors was held at the University Hotel in UP Diliman Campus. The training was participated by 36 Inspectors.

AWARENESS SEMINAR CONDUCTED

The Bureau has already conducted four (4) awareness seminar in the following provinces:

Sorsogon	56 pax attended
Baguio City	75 pax attended
Davao City	60 pax attended
Iloilo City	80 pax attended



INDUSTRY LED SEMINARS ATTENDED

The Bureau attended the GAP Seminars conducted by Industry associations in the following provinces

- Seminar on GAP for Export-Quality Mango in Sultan Kudarat & South Cotabato
- Seminar on GAP for Export-Quality Mango in Butuan City & Cagayan de Oro City
- AusAid funded project - Davao City Chamber of Commerce



INVOLVEMENT IN INTERNATIONAL GAP STANDARDS

The Bureau assisted in the formulation ASEAN GAP.



OTHER UPDATES

The Bureau has furnished the DA Regional Field Units a copy of the Application Form for GAP Certification.





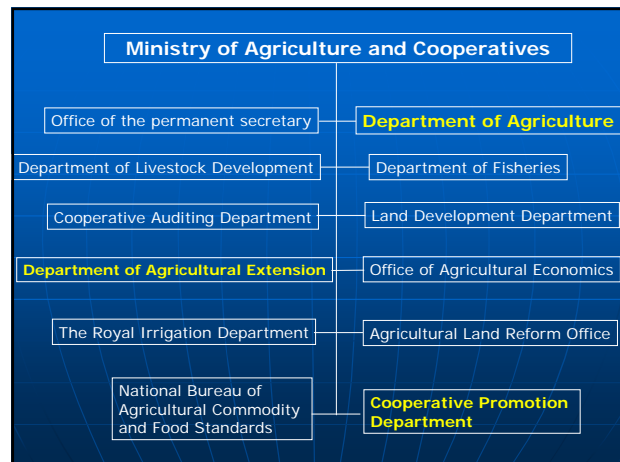
Capacity Building for GAP in Thailand

Out lines

- Food safety Background
- Food safety on crop strategies
- GAP implementation
- GAP principles

Food Safety Background

- Cabinet resolution of 4 March 2003
- Framework guidelines for inspection and certification
- Food Safety Year 2004
- Public Relation Campaigns



Food Safety on Crops Strategies

1. Inputs and raw materials inspection
2. Production certification
3. Manufacturing facilities certification
4. Product certification

Food Safety on Crops Strategies

Strategy on production at farm level under GAP protocol

- Develop GAP protocol and guidelines
- Encourage farmers to register
- Inspect and certify farms (28 crops)
- Inspect and follow up on the use of inputs in certified farms

Food Safety on Crops Strategies

Strategy on production at farm level under GAP protocol (continued)

- Set up training programs for inspectors, advisors, and private sector
- Introduce GAP certified farms to exporters for contract farming system

^{PCI2} GAP Program

To ensure that food crops produced in Thailand are safe, wholesome and meet standards and requirements of the country.

- Maintain consumer confidence in food quality and safety
- Safe practices for growers
- Minimize negative impacts on the environment

GAP implementation (July 2006)

Status of GAP in Thailand

- **DOA GAP program in 28 crops**
- Registered 501,663 farms
- Certified 41 %

Crops were certified (28 crops)

Longan, Durian, Mangosteen, Pomelo, Lichee, Tamarind, Mango, Pineapple, Young coconut, Longong, Rambuten, Tangerine, Banana, Asparagus, Okra, Baby corn, Ginger, Chili, sweet corn, herbs and vegetable 4 groups, Coffee, Peanut, Soybean, Rice

Crops certified

crops	registered	certified
longan	127,725	67 %
durian	25,254	55 %
Mangosteen	24,751	55 %
Asparagus	10,143	29 %
Okra	3,100	22 %
Baby corn	7,112	42 %

Crops certified

crops	registered	certified
Pomelo	6,591	60 %
Lichee	10,978	42 %
Tamarind	6,975	43 %
Mango	16,719	36 %
Ginger	623	52 %
Chili	20,301	17 %

Slide 8

PC12 dotที่ น่าจะเป็น production safety หรือ safe practices for grower
Preinstall Customer, 12/30/05

Crops certified

crops	registered	certified
Rice	122,125	20 %
Pineapple	18,691	18 %
Longong	16,980	64 %
Coffee	13,167	30 %
Peanut	9,766	18 %

Crops certified

crops	registered	certified
Tangerine	8,584	46 %
Sweet corn	7,375	17 %
Banana	4,107	48 %
Vegetable	10,162	20 %
Herbs	4,958	35 %

Checklists for GAP inspection 8 principles

- Water source
- Growing area
- The use of agric. substances
- The application method, storage and transportation of agric. produces in farm

Checklists (con.)

- Produces free from pest
- Production process for quality produces
- Harvesting and post harvest practices
- Record keeping



Farms

- Registration and GAP certification of farms
- Inspection and follow up on the use of inputs in GAP farms

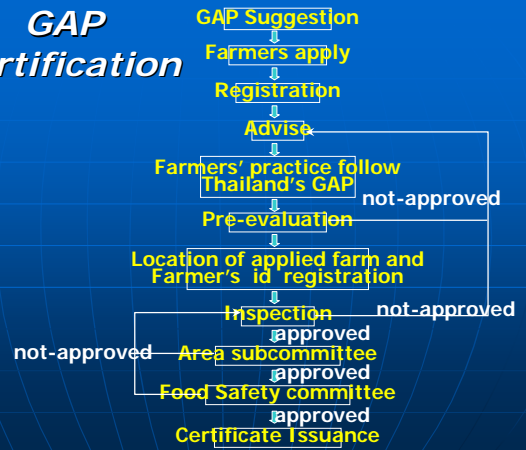
Exported produces under measure by Cabinet Resolution

- | | |
|--------------|-------------|
| ✓ Longan | ✓ Pomello |
| ✓ Durian | ✓ Asparagus |
| ✓ Lichee | ✓ Ginger |
| ✓ Mangosteen | ✓ Okra |
| ✓ Tamarind | ✓ Baby corn |
| ✓ Mango | ✓ Chili |

Importing countries

- | | |
|-------------|--------------|
| ✓ EU | ✓ P.R. China |
| ✓ Hong Kong | ✓ Singapore |
| ✓ Japan | ✓ USA |
| ✓ Malaysia | |

GAP Certification



Conclusion

- *Food safety programs in Thailand especially the GAP have just been introduced in 2003. Improvement will take some times for development.*

01/03/50



Conclusion(cont.)

- Many reports on the existing GAP program studied by both international and national consultants should be follow up

Conclusion(cont.)

- Communication among all stakeholders in GAP system are necessary

Thank you

For your attention





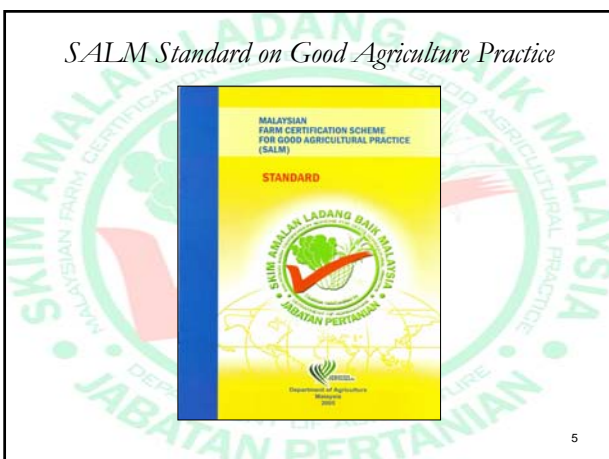
WHAT IS SALM?

SALM (Malaysian Farm Certification Scheme for Good Agricultural Practice) is a national program implemented by **Department of Agriculture** to **recognize** and **accredit farms** which adopt **good agricultural practices** (GAP), operate in an **environmentally friendly** way and **yielding products** that are **quality, safe** and **suitable** for human consumption.

SALM Standard

Based on :

1. Malaysian Standard MS 1784 : 2005 Crop Commodities – Good Agricultural Practices (GAP)
2. EurepGAP protocol for Fruits and Vegetables *that are not defined in MS-GAP*



Level and Classification of Rules of SALM Standard

29 Major Must
76 Minor Must
57 Encouraged

Criteria for SALM Certification :

Only farms that fulfill the rules (SALM Standard of Good Agricultural Practice) of ALL Major Must + 95% of Minor Must

Procedure for Certification :

- Application
- Appoint of an officer (≥ 2 auditors)
- Farm checking
 - a. Site Inspection
 - b. Farm Practices
 - c. Product & Water Analysis
- Assessment
- Report Preparation
- Conclusion

7

Farm Checking

The 'Farm Checking' section contains four images. The top-left image shows two men standing next to a white truck in a field. The top-right image shows a similar scene with a different person. The bottom-left image shows a person standing in a large open field. The bottom-right image is a composite showing a map of an area labeled 'GADANG', a close-up of a data log, and a small inset image of a person.

16 Elements for SALM certification

1. TRACEABILITY
2. RECORD KEEPING AND INTERNAL AUDIT
3. PLANTING MATERIALS AND ROOT STOCKS
4. SITE HISTORY AND SITE MANAGEMENT
5. SOIL AND SUBSTRATE MANAGEMENT
6. FERTILIZER MANAGEMENT (ORGANIC & INORGANIC)
7. IRRIGATION AND FERTIGATION
8. CROP PROTECTION
9. HARVESTING
10. POST HARVEST HANDLING
11. PESTICIDE RESIDUE ANALYSIS OF PRODUCE
12. WASTE & POLLUTION MANAGEMENT, RECYCLING & RE-USE
13. WORKERS' HEALTH, SAFETY AND WELFARE
14. ENVIRONMENT ISSUES
15. RECORD OF COMPLAINTS
16. LEGAL REQUIREMENTS

9

1. TRACEABILITY

The produce shall be traceable to the farm where it has been originally produced.

10

2. RECORD KEEPING & INTERNAL AUDIT

2.1 Record Keeping

Farms shall keep up-to-date records.

All records shall be maintained and retained for at least six months unless stipulated by any specific legislation.

Records keeping system shall be established in which all the essential elements are captured.

The records shall be accessible and audited.

All farm records shall be treated as confidential.

2.2 Internal Audit

Internal audit shall be carried out at least once a year based on the requirements of this standard.

It shall be completed and documented.

Corrective actions shall be implemented and documented.

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3. PLANTING MATERIALS & ROOTS STOCKS

The use of genetically modified planting materials shall be avoided unless expressed permission has been given by the relevant authorities and shall comply with existing regulations in the country of the final consumers.

13

3. PLANTING MATERIALS & ROOTS STOCKS..

The planting of genetically modified organism (GMO) shall be agreed between crop producers and customers before planting.

Supplies must inform all customers of any developments relating to the use or production of product derived from genetic modification before engagement.

14

3. PLANTING MATERIALS AND ROOTS STOCKS..

Where protected varieties are used, the farm shall respects intellectual property right legislation on plant variety protection.

If seed treatments are carried out, the use of these treatments shall be justified and shall be recorded.

15

4. SITE HISTORY AND SITE MANAGEMENT

4.1 Site History

A recording system shall be established for the site history and the layout of fields of their crop history.

For all new agricultural sites, a risk assessment shall be carried out, taking into account :

- (a) the prior use of the land
- (b) potential impacts of the production on adjacent crops are areas and
- (c) potential impact of activities carried out at adjacent areas.

4.1 Site History ...

The information of the risk assessment shall be recorded.

A corrective action plan must be develop setting out strategies to minimize all identified risk in new agricultural sites.

Farms should not be located more than 1,000 meters above sea level unless the land was developed prior to 1st January 2002.

17



4.2 Site Management

The farm management shall demonstrated that it has legal rights to the cultivation of the land and all necessary regulatory approvals.

Where farms are located on sloping land (within the permissible level), appropriated soil conservation measures shall be undertaken to prevent soil erosion and silt deposition into drains, waterways, etc..

A visual identification or reference system for each field shall be established.

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5. SOIL AND SUBSTRATE MANAGEMENT

5.3 Soil Erosion

Field cultivation technique that minimize soil erosion shall be adopted.

5.4 Soil Fumigation

Where chemical fumigation of soils is carried out, it shall be justified and recorded.

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5.5 Substrates

Where chemicals are used to sterilize substrates for re-use, records shall be kept and shall contain location of sterilized substrates.

Where chemicals are used to sterilize substrates for re-use, records of date, type of chemicals used, method of sterilization and name of operator shall be kept.

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6. FERTILIZER MANAGEMENT (ORGANIC AND INORGANIC)

6.1 Nutrient Requirement

Fertilizer application, using either mineral or organic fertilizers, must meet the needs of the crops as well as maintaining soil fertility.

6.2 Fertilizer Utilization

Growers or their advisors must be able to demonstrate competence and knowledge.

23

6.3 Records of Application

All application of soil and foliar fertilizers shall be recorded.

Records shall include location, date of application, type and quantity of fertilizer applied, the method of application and name of operator.

Any application of nitrogen in excess of national or international limits must be avoided.

6.4 Application Machinery

Fertilizer application machinery shall be kept in good working condition.

24

6.5 Fertilizer Source and Storage

Fertilizer stock records shall be kept up to date and made available.

If this is not possible, the fertilizers and the pesticides shall be physically separated and labeled accordingly.

Fertilizer shall be stored in a covered, clean, dry location where there is no risk of contamination of water sources.

Fertilizer shall not be stored with nursery stock.

6.5 Fertilizer Source and Storage...

Fertilizer shall not be stored with fresh produce.

All hazard and risk areas to human health shall be clearly indicated.

Record of source and chemical content of fertilizer used shall be made available.

6.6 Organic Fertilizer

The use of untreated and treated human sewage sludge and pig waste is prohibited.

Source of organic fertilizer used shall be recorded.

7. IRRIGATION & FERTIGATION

7.3 Quality of Water

Untreated sewage water is prohibited for use.

The analysis results shall adhere to the Environment Quality act and environmental Quality Regulations and adverse results acted upon.

8. CROP PROTECTION

8.1 Basic Elements of Crop Protection

The use of pesticides to protect the crop shall be minimized.

Wherever possible, crop produces shall apply recognized integrated Pest Management (IPM) techniques.

Non-chemical control measures are preferred over chemical treatments.

8.2 Choice of Chemicals

The crop protection product utilized shall be appropriate for the control required.

Crop produces shall only use chemicals that are officially registered under the Pesticide Act, for use on the crop that is to be protected.

A current list of all products that are used approved for use on crops being grown must be kept.

For crops to be exported, crop producers shall not use chemicals that are banned or disallowed in importing countries.

8.3 *Advice on Pesticide Usage*

Crop producers must seek advice on pesticide usage from competent authorities.

8.4 *Records of Application*

All application of pesticides shall include crop name, location and date of application, reasons for application, trade name of pesticide used, dosage, method of application and name of operator.

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8.5 *Safety, Training & Instructions*

Operators shall be trained on safe and proper use of pesticides.

8.6 *Personal Clothing & Equipment*

Operators shall be equipped with suitable personal clothing and equipment appropriate to the danger posed to health and safety.

Personal clothing and equipment shall be cleaned after use and stored separately from pesticides.

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8.7 *Pre-Harvest Interval*

Pre-harvest interval as prescribed on pesticide labels shall be strictly adhered.

33

8.8 *Spray Equipment*

Spray equipment shall be suitable for use on crop and form in question and shall be kept in good working condition.

Calibration shall be carried out as and when necessary to ensure accurate delivery of the required quantity of spray.

When mixing chemicals, the correct quantity of spray mix for the crop to be treated and the proposed treatment type shall be calculated, accurately prepared and recorded.

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8.10 *Pesticide Storage*

Pesticides shall be stored in accordance with local regulations.

Pesticides shall be stored in a sound, secured, water resistant, well ventilated and well-lit location away from other materials.

The pesticide store shall be able to retain spillage, e.g. to prevent contamination of water courses.

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8.10 *Pesticide Storage...*

There shall be adequate facilities for measuring and mixing pesticides.

There shall be emergency facilities e.g. plenty of clean water, bucket of sand, to deal with contamination and accidental spillage.

Keys and access to the store shall be limited to workers with adequate training in the handling of pesticides.

An accidents procedure, a list of contact telephone numbers and the location of the nearest telephone shall be available within the immediate vicinity of the store and next to the nearest telephone.

8.10 Pesticide Storage...

Inventory shall be kept and readily available.

All pesticides shall be stored in their original package.

Only chemicals registered for use on crops on the farm shall be stored.

Powders shall be stored on shelves above liquids or separately.

Warning signs of potentials dangers shall be placed on access doors.

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8.11 Empty Pesticide Containers

Empty pesticide containers shall not be used and the disposal of empty pesticide containers shall be in a manner that avoids exposure to humans and contamination of the environment.

Empty containers shall be rinsed at least three times with water, and the washings returned to the spray tank.

Unless participating in established recycling programs or with expressed permission from the authorities, rinsed containers shall be pierced to prevent re-use.



8.11 Empty Pesticide Containers...

Empty containers shall be kept secure until disposal is possible.

Disposal or destruction of containers shall be in accordance to the Pesticide Act and/or any other relevant local regulations.

8.12 Obsolete Pesticides

Obsolete pesticides shall only be disposed through an approved chemical waste contractor.

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9. HARVESTING

9.1 Hygiene

Workers shall undergo training in basic hygiene and food safety before handling fresh produce.

They shall be made aware of the requirement to notify management should they contract any transferable diseases, which may render them unfit to work in the vicinity of produce destined for human consumption.

Workers shall have access to clean toilet and washing facilities in the vicinity of their work.

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9.2 Packaging on Farm

Packaging material shall be stored to avoid contamination by physical and chemical hazards, as well as pests.

It shall be protected from rodents, birds and other animals.

Where produce is field packed, packaging shall not be left in the field overnight where risk of contamination exists.

Re-usable crates shall be cleaned to ensure that they are free foreign materials which may be detrimental to the produce and/or consumers' health.

10. POST HARVEST HANDLING

10.1 Post Harvest Treatment

When used, it shall be in accordance with product label or established recommendations.

When chemicals are used, they shall be in accordance with the Malaysia Food Act and Food Regulations.

In addition, where pesticides are involved, they shall be officially registered under the Pesticide Act.

For crops to be exported, crop producers shall not use chemicals that are banned or disallowed in importing countries.

10.1 Post Harvest Treatment...

A current list of all products that are used and approved for use on the crops being grown must be kept.

Crop producers must consult their customers to determine if any additional commercial restrictions exist.

Crop producers must be able to demonstrate their competence and knowledge with regard to the post harvest treatment.

Records for all post harvest treatment shall be kept to include crop name, location, date of treatment, reason for treatment, type of post harvest treatment, dosage, methods of treatments and name of operator.

10.2 Post Harvest Washing

Potable water shall be used for washing of produce

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11. PESTICIDE RESIDUE ANALYSIS OF PRODUCE

Crop producers and/or suppliers shall provide evidence of residue testing.

The laboratories used for residue testing shall be accredited by a competent accreditation authority to good laboratory standards. (e.g. ISO/IEC 17025)

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12. WASTE AND POLLUTIONS MANAGEMENT, RECYCLING & RE-USE

All possible waste products and sources of pollution should be identified in all areas of the farm business.

Having identified wastes and pollutants, a plan should be developed and implemented to avoid or reduce wastage and pollution.

Whenever possible, avoid land filling or burning by recycling the waste.

Crop debris may be composted and re-used for soil conditioning.



13. WORKERS' HEALTH, SAFETY & WELFARE

13.2 Training

Training shall be given to workers operating dangerous or sophisticated equipments.

Record of training for each employee shall be kept.

Accident and emergency procedures shall be available with clear instruction to all workers.



13.3 Facilities and Equipment

First aid boxes shall be available of permanent sites on the farm.

13.4 Pesticide Handling

Workers undertaking pesticide application on the farm should receive health checks in line with guidelines by local regulatory requirements.

13.5 Hygiene

All permanent product packaging and storage sites shall have adequate pest control measures, particularly in areas of food handling, storage of packaging, storage of pesticides and storage of fertilizers.

13.6 Welfare

All employment conditions shall comply with local and national regulations.

If on-site living quarters are provided, they shall be habitable and have basic amenities and facilities.



14. ENVIRONMENTAL ISSUES

14.1 *Impact of Farming on the Environment*

Crop producers shall conform to **existing environmental legislation** that covers the concern for air, water, soil, biodiversity and other environmental issues.

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14.2 *Wildlife and Biodiversity Conservation*

Where Environment Impact Assessment (EIA) is required, consideration for the conservation of wildlife and biodiversity shall include the following areas :

- (a) Conduct baseline audit to understanding existing and animal diversity on the farm. Conservation organizations may be requested to conduct survey to measure biodiversity and identify areas of concern,
- (b) Take action to avoid damage and deterioration of habitats and
- (c) Create an action plan to enhance habitats and increase biodiversity on the farm.

15. RECORDS OF COMPLAINTS

Records of complaints on all produce not in compliance with the requirements in this Standard and their remedial actions shall be made available on site.

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16. LEGAL REQUIREMENTS

All farm activities and produce shall in all other aspects comply with the requirements of the legislations currently in force in Malaysia.

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Only those farms that had fulfill the rules (SALM Standard) of ALL Major Must and 95% Minor Must will receive honors from certify body :

i. Certificate of Good Agricultural Practice



ii. Allowed to use the SALM logo for their product








INDONESIAN GOOD AGRICULTURAL PRACTICES

(INDON-GAP)





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OUTLINE OF PRESENTATION

1. Background
2. Objectives of presentation
3. Development of GAP provision in Indonesia
4. Needs of GAP provision for Fresh Produces
5. GAP for Grain Food Crops
6. Constraints of GAP Implementation
7. Conclusions/Remarks



I. BACKGROUND

- Main New Challenges of Agricultural Sector:
 - (1). to improve food security, rural livelihoods and income
 - (2). to satisfy the increasing and diversified demands on food safety and traceability
 - (3). to conserve and protect natural resources (land, water, environment)
- Global Interest on food safety and traceability not only among consumers, but also among producers and traders
- A GAP approach is considered to respond those challenges.



I. BACKGROUND (2)

- A GAP approach will concretely contribute to environmental, economic and social (3 pillars of) sustainability of on-farm production resulting in safe and healthy food and non-food agricultural products.
- GAP have to give benefits to:
 - (1). small, medium and large-scale of farmers, who will achieve added value and better access to market.
 - (2). consumers, who will be assured of better quality and safer food, produced in sustainable ways.
 - (3). business and industry, who will gain profit from better products.
 - (4). all people, who will enjoy a better environment





I. BACKGROUND (3)

- In Indonesia, it is believed that GAP, theoretically, will give benefits to all parties.
- To the farmers and producers :
 1. Getting accustom to well prepared their business management plan
 2. They are trained/taught to become professional businessmen
 3. Getting familiar with recording all the production processes while improving their capability
 4. Production system will sustain and run well

5. Transparent in production process and procedure
6. Produce certified products, easy marketed, and higher price
7. Farmers are responsible for product quality and environmental sustainability
8. The business-farmer protects their workers with insurance
9. A trust from the consumers to the farm products
10. If there is any pricing disparity, the producers/ farmers can directly ask and discuss with the retailer/grocers/supermarket



I. BACKGROUND (4)

- To the supermarket and suppliers
 1. A consumable guarantee on the products bought in bulk from the producers-farmers
 2. Products traceability if there are any complains from consumers
 3. The GAP certificate document may answer any judicial processes
 4. GAP certificate is a product promotional guarantee
 5. GAP is a lawful assurance to the marketed products
 6. Guaranteed quality on the selling/offering products

I. BACKGROUND (5)

- To the consumers
 1. A guarantee on the product quality and consumption safety
 2. Consumers' secured feeling
 3. Consumers can trace the product origin, production process, and producer *on line*
 4. Building consumer awareness on the production process


I. BACKGROUND (6)

- GAP has been intensified and implemented by developed countries, such as EUREP GAP, US-GAP, etc
- Some Asian countries are more advanced than others
- Need unique system of GAP for each Asian country ?
- Is ASIAN-GAP needed ?
- INDON-GAP also needed ?

II. OBJECTIVES OF THIS PRESENTATION

To give information on:

- Development of GAP Provision in Indonesia
- Status of INDON-GAP and its implementation
- Constraints of GAP implementation & Government Policies
- Collaboration needs



III. DEVELOPMENT OF GAP PROVISION IN INDONESIA

- Several concepts, laws, regulations addressed to food security, food safety, and environmental sustainability have been established. These can be used as the basic materials for INDON-GAP development.
- National Standardization Agency has provided a reference for quality standard, called Indonesian National Standard, including agricultural products.
- Codex alimentarius is used as reference for agricultural products, esp – for international market.
- Concept of “Integrated Pest Management” (IPM) has been implemented for several commodities, such as rice, soybean, vegetables, estate crops, etc.

III. DEVELOPMENT OF GAP PROVISION IN INDONESIA (2)

Integrated Crop Management (ICM) AND Integrated Crop Management

Table 1. Components and its function of ICM

Components	Function
1. Environmental Management	Sustain and control the environmental
2. Crop Rotation	Make crop production system in healthy
3. Crop nutrient management	Optimize crop growth
4. Monitor and audit pests and insects	Accurate IPM program
5. Organizational management	Balance supply and demand
6. Energy management	Optimize energy uses
7. Soil and water management	Conserve agricultural land resources quality
8. Wastes and pollutants management	Environmental health
9. Ecology and wild life management	Ecology equilibrium
10. Market Strategy	Increase farmers' income

III. DEVELOPMENT OF GAP PROVISION IN INDONESIA (3)

- Regulation on Maximum Residue Limits (MRL) for several crops, esp. for fresh products, has been established/implemented
- Guideline for Agricultural Resources (land/soil, water, microorganism, etc) conservation has been established.
- Rule that Environmental Impact Assessment/Analysis has to be carried out if someone/private will establish projects, factories, etc
- Organic Farming System Development
- Other rules, Guideline, Laws related with food security, food safety and environmental sustainability




III. DEVELOPMENT OF GAP PROVISION IN INDONESIA (4)

However, it does not automatically pass the GAP certification, because:

1. Fragmental documents
2. Not all Rules, Laws, concepts have enforcement to apply, such as ICM
3. Weak in certification systems and market access
4. Induced more by Government, NGO, farmers
5. Principle of traceability, transparency in process, and quality assurance have not been accommodated yet, for example for ICM concept.
6. There is no record keeping for production processes




IV. NEEDS OF GAP PROVISION FOR FRESH PRODUCE




- Consumers are much more concerned about quality and safety of fresh products, such as: fruits, vegetables, etc
- In Indonesia, Good Farming Practices (GFP) for Horticulture has been established in 2003, called: *"Norma Budidaya yang Baik dan Benar"*.
- INDON-GAP for Fruit Crops was developed and improved in 2004, called: *"Panduan Budidaya Buah yang Benar"*.
- INDON-GAP for Fruit Crops is a series of fruit production processes based on the application of science and technology which meets the requirements on food safety and land conservations, so the fruit produced will be of good quality and safe for consumption.








IV. NEEDS OF GAP PROVISION FOR FRESH PRODUCE (2)

INDON-GAP for Fruit crops is published as a general guideline at farm fruit production in order to ensure the quality of the products, the safety for the producers, consumers, and the environment, the occupational health, as well as the sustainability of production system, making possible to obtain high productivity, good quality product, and optimum profit.



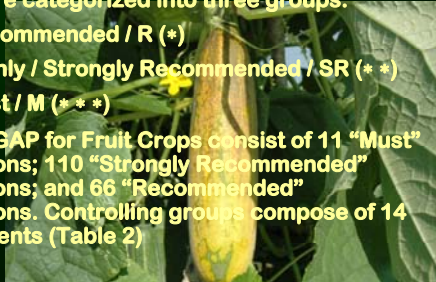
INDON-GAP for Fruit Crops is applied with the following objectives:

- 1) To promote the production and productivity of fruit crops
- 2) To promote the quality and safety of fruit production for consumption
- 3) To promote the efficiency of production and competitiveness of fruit products
- 4) To improve the efficiency of natural resource use
- 5) To maintain land fertility, environmental conservation, and sustainable production system
- 6) To encourage farmers and farmers' groups to be aware of personal health and safety, and of the environment
- 7) The increase income opportunity through international markets
- 8) To provide safety assurance to consumers

IV. NEEDS OF GAP PROVISION FOR FRESH PRODUCE (3)

- Standard adopted in INDON-GAP for Fruit Crops are categorized into three groups:
 - a) Recommended / R (*)
 - b) Highly / Strongly Recommended / SR (**)
 - c) Must / M (***)
- INDON-GAP for Fruit Crops consist of 11 "Must" regulations; 110 "Strongly Recommended" regulations; and 66 "Recommended" regulations. Controlling groups compose of 14 components (Table 2)

IV. NEEDS OF GAP PROVISION FOR FRESH PRODUCES (4)

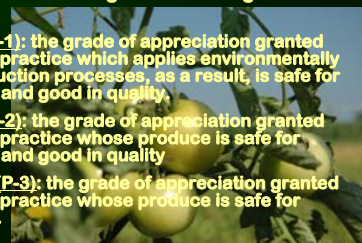
Table 2. Example of INDON-GAP for Fruit Crops (2004)

No	Group of Controlling Item	Application status of regulation		
		Must	Strongly Recommended	Recommended
1.	Land and location selection	3	14	7
2.	Seed and variety	-	3	1
3.	Planting	-	3	3
4.	Fertilization	2	10	8
5.	Pest control	5	30	10
6.	Irrigation	-	3	7
7.	Crop management	-	3	4
8.	Harvest	-	5	4
9.	Post harvest handling	-	19	8
10.	Machinery utilization	-	1	2
11.	Environmental sustainability	-	1	1
12.	Working safety	1	12	3
13.	Cleaness and sanitary	-	3	-
14.	Recording controlling	-	3	8
Total controlling items		11	110	66

IV. NEEDS OF GAP PROVISION FOR FRESH PRODUCES (5)

- INDON-GAP for Fruit Crops is then harmonized with certification (an appreciation which is granted only for and orchard's owner / fruit producers / farmers upon his successful cultivation)
- The products of their farming are then categorized into :

- Prime One (P-1):** the grade of appreciation granted for a farming practice which applies environmentally friendly production processes, as a result, is safe for consumption and good in quality.
- Prime Two (P-2):** the grade of appreciation granted for a farming practice whose produce is safe for consumption and good in quality
- Prime Three (P-3):** the grade of appreciation granted for a farming practice whose produce is safe for consumption.



IV. NEEDS OF GAP PROVISION FOR FRESH PRODUCES (6)

- P-1 certificate, if:**
 - ✓ Apply all (100%) M-regulations
 - ✓ Apply ≥ (90%) SR-regulations
 - ✓ Apply ≥ (60%) R-regulations
- P-2 certificate, if:**
 - ✓ Apply all (100%) M-regulations
 - ✓ Apply ≥ (70%) SR-regulations
 - ✓ Apply ≥ (40%) R-regulations
- P-3 certificate, if:**
 - ✓ Apply all (100%) M-regulations
 - ✓ Apply ≥ (60%) SR-regulations
 - ✓ Apply ≥ (20%) R-regulations



V. GAP FOR GRAIN FOOD CROPS

- Many environmentally friendly concepts on grain food crops production in Indonesia, such as:
 - ✓ IPM
 - ✓ ICM (ICRM)
 - ✓ Agro – eco – technology
 - ✓ Environmentally Friendly Farming & Ecobiological Farming
 - ✓ Conservation Technology
 - ✓ Organic farming
- However, it does not automatically pass the GAP certification
- INDON-GAP for Grain Food Crops has not formally been developed and recommended



V. GAP FOR GRAIN FOOD CROPS (2)

- Is GAP for Grain Food Crops needed ?
- Considerations:
 - ✓ Food (grain, tuber) products are harvested from many farmers and locations.
 - ✓ They are sent and marketed in bulk.
 - ✓ Packaging is done after they are all dried in bulk / together.
 - ✓ Food products are produced by small farmers, cultivated with different management.
 - ✓ Most farmers with low education.
 - ✓ Traceability of cereal products is not so important, because they are washed and cooked before consumption.

- Considerations (cont.):
 - ✓ Pesticide residue in cereal products are not as high as those of fresh products.
 - ✓ Rice, corn, soybean, tuber retailers almost never get any complaint from consumers related with pesticide residue.
 - ✓ So far, market does not need GAP certificate requirement

V. GAP FOR GRAIN FOOD CROPS (3)

- For the time being, GAP for Grain Food Crops is not necessary.
- However, it may be very important within a decade, or it probably starts in 2010 due to the raising concerns of the issues on environment, soil fertility conservation, quality and food safety, workers' insurance and safety.

V. GAP FOR GRAIN FOOD CROPS (5)

Development of Organic Farming :

- AOF (Absolut Organic Farming) is farming practice focuses primarily on the use of organic materials as fertilizer to improve soil fertility, and on biopesticides to control pest and diseases.
 - Healty product and clean environrment
 - Low yield but are compensated by high prices of the products
- ROF (Rationale Organic Farming) is farming practice allows the uses of inorganic fertilizers to supply nutrients needed by crops for high yield in combination with organic gftilizer to improve soil condtion
 - High yield and sustainable crop production



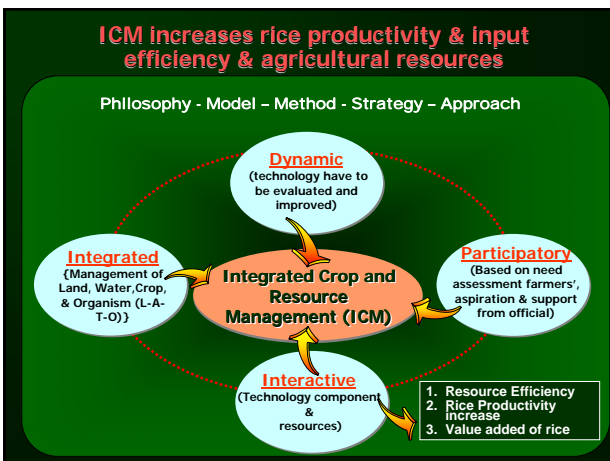
ICM (Integrated Crop & Resources Management)

Philosophy & ICM Definition

Philosophy - Model - Method - Strategy - Approach (not a technology)

Integrated management of Land-Water-Crop-Organism (pest and diseases)

- Integrated
- Interactive & Sinergistic
- Participatory
- Dynamic



ICM is an innovative approach in order to increasing productivity, efficiency and sustainability of rice farming with component technology could be:

- * sinergistic effect
- * partisipatory approach and
- * specific location

(bio-physic & socio-economic) >> resources & problem solving oriented

VI. CONSTRAINTS AND GOVERNMENT POLICIES ON INDON-GAP IMPLEMENTATION

- ❑ INDON-GAP for Fruit Crops has not been fully implemented yet, still in socialization process.
- ❑ Firstly, will be implemented and tested for estate fruit crops.
- ❑ It is not easy to implement INDON-GAP for Fruit Crops at farmer level because of:
 - ❖ Low scale
 - ❖ Low education
 - ❖ Lack of capital
 - ❖ Low management
 - ❖ Low market access
- ❑ Farmer group/association is weak and need to be strengthened.
- ❑ Most consumers do not concerns much with safety, still need cheap price.

VI. CONSTRAINTS AND GOVERNMENT POLICY ON INDON-GAP IMPLEMENTATION (2)

Government Policies and Stepping on INDON-GAP Implementation

- ❑ Take into account carefully that :
 - Concern on food safety, human health and farmers' prosperity
 - Awareness on physical, chemical, and biological degradation of natural resources affecting sustainable land and crop productivities
- ❑ Selected Priority Commodities (High value crops)
 - Vegetables & Fruits (fresh product)
 - Industrial crop (estate crop)

Government Policies and Stepping on INDON-GAP Implementation (cont.)

- ❑ Development of AOF (Absolut Organic Farming) & ROF (Rationale Organic Farming)
- ❑ Step by Step Implementation
 - Socialization Process
 - Regulation & Legal Aspect Preparation
 - Advocation & Implementation
 - Law Enforcement



VII. CONCLUSIONS / REMARKS

- ✓ GAP concept is required to respond new challenges of agricultural development and increasing global interest on food safety and trace ability.
- ✓ GAP concept has to give benefit to all actors (producers, consumers, traders, retailers, and all people).
- ✓ All responsibilities of GAP application belong to the producers / farmers, so GAP certified products should have higher prices from consumers
- ✓ GAP can be basically developed from the existing concepts, such as IPW, ICM, Agro-eco-technology, Conservation technology, Organic Farming, etc.

VII. CONCLUSIONS / REMARKS (2)


- ✓ GAP for fresh products is much more important than that of grain food crops.
- ✓ INDON-GAP for horticulture has been introduced in 2003, and INDO-GAP for Fruit Crops has been developed/issued in 2004. There is harmonization of INDON-GAP for Fruit Crops and Prima certification.
- ✓ Currently, INDON-GAP for Grain Food Crops has not been developed / established with several logical reasons. However, it is good to start thinking on this issue.

VII. CONCLUSIONS / REMARKS (3)

- ✓ Developed countries are more intensive to implement GAP, such as EURERGAP, US-GAP. Each ASIAN countries need unique GAP due to different socio-economic and agro ecological characteristic.
- ✓ Do we need ASIAN-GAP, esp. for horticulture or other fresh products?
- ✓ Need strong collaboration among ASIAN countries in GAP development, including capacity building on GAP, training, education, sharing information, harmonization in GAP implementation, etc.




Agri-Food & Veterinary Authority of Singapore



Good Agricultural Practice for Vegetable Farming (GAP-VF) Certification Scheme

KHOO Gek Hoon
Head/ Quality Systems Branch
Food Supply and Technology Department




Ensuring a resilient supply of safe food,
Safeguarding the health of animals and plants &
Facilitating agri-trade for Singapore.

Agri-Food & Veterinary Authority of Singapore




Singapore




- Island city-state total land area of 699 sq km
- Population of about 4.2m people, tourist population of about 8.9m
- Intense competition for land in Singapore; limited land for agriculture (2.1%)

Agri-Food & Veterinary Authority of Singapore



Food Paradise




Hurl a chopstick anywhere in Singapore and it'll land in something edible. All international cuisines are here, though Chinese, Indian and Malay dominate.






Agri-Food & Veterinary Authority of Singapore




Per Capita Consumption



Yr 2004

Poultry	34	kg
Fish	23	kg
Pork	20	kg
Beef & Mutton	6	kg
Fruits	80	kg
Vegetables	84	kg
Hen Eggs	263	eggs

Agri-Food & Veterinary Authority of Singapore



Food Supply

- Total supply of primary foods, S\$2B (US\$1.25B)
- Import 90% of its fresh food requirements
- Limited domestic farm produce (chicken, fish, hen eggs & vegetables) 0.1% of GDP, S\$191M (US\$119M)

FISH


Indonesia
Malaysia
Thailand

EGG

Malaysia

FRUITS

Malaysia
China
USA
Thailand



Diversified Sources

CHICKEN

Malaysia
Brazil
USA

PORK

Australia
Brazil
Indonesia

BEEF/MUTTON

Brazil
Australia
New Zealand

Agri-Food & Veterinary Authority of Singapore



Constant Challenges

- Assuring high food safety standards
- Protecting animal and plant health
- Ensuring competitiveness of local producers

- Singapore does not provide subsidies to its agricultural activities nor impose tariff on food imports
- Compete in an open market with imports



Agri-Food & Veterinary Authority of Singapore

Holistic Approach in Food Safety Assurance

Integrated food safety management system:

- ✦ **Legislations for import and production**
 - > Licensing and enforcements
- ✦ **Source accreditation programme**
- ✦ **Inspection, monitoring and surveillance programmes**
- ✦ **Adopting and maintaining high food safety standards and systems**
 - > Joint FAO/ WHO CODEX Alimentarius Commission, OIE
 - > Technical cooperations & discussions
 - > Seminars & workshops
 - > Applying scientific and R&D knowledge
 - > State-of-art lab. testing capabilities
- ✦ **Encouraging shared responsibility and industry self-regulation**
 - > Industry partnership & consumer education

Agri-Food & Veterinary Authority of Singapore

Food Safety Assurance in Fresh Produce Supply

Regulatory Controls

- *Import (811,981 tonnes), 31 - 43 countries*
- *Local Produce (17,192 tonnes)*

1. Legislations

- ✦ Sale of Food Acts - Ninth Schedule under the Food Regulations
- ✦ Control of Plant Acts
- ✦ Adopting food safety standard - Codex Alimentarius

2. Import Regulations

- ✦ Import and trans-shipment license
- ✦ Consignment subject to inspection
 - > Receptacles must comply to labeling regulation (farm source identification, product description, date of export)
 - > Import shall not contain any residue of pesticides or harmful contaminations exceeding the permitted levels.

3. Inspection Programmes

Agri-Food & Veterinary Authority of Singapore

Regulating Fresh Produce Safety

Point of Import	Domestic Farm
<ul style="list-style-type: none"> ● Enforce 3 Inspection Programmes: 1. Routine Monitoring (MSP) 2. Enforcement Surveillance (ESP) 3. Enhanced Enforcement (EEP) cum Restricted Import Measure (RIM) ■ Sampling produce for pesticide residues (<5% violation rate), harmful preservatives, heavy metals, microbial contaminants 	<ul style="list-style-type: none"> ● Enforce safe pesticide application, storage and disposal ■ Licensing pesticide operator ■ Pesticide Registration ■ Records keepings ■ Sampling crops for pesticide residues

Agri-Food & Veterinary Authority of Singapore

Regulating Fresh Produce Safety

- **Backend Random Check (2.6%)**
- **High Sampling \$Cost manpower, lab tests (US\$2.2m/yr), wastage**
- **Credible labs (S\$3.7m)**

Market Place

3. Product Release

2. Product Analysis

1. Product Sampling

Farm Produce Imported Product

Agri-Food & Veterinary Authority of Singapore

Evolving Global Trends

GAP Programs/ Schemes in Year 2000

- EUREPGAP
- USA GAP
- Freshcare
- COFFS
- CODEX Alimentarius
- FAO GAP

Other Food Safety Systems

- HACCP
- GMPs, GHPs, SSOPs
- SQF

Agri-Food & Veterinary Authority of Singapore

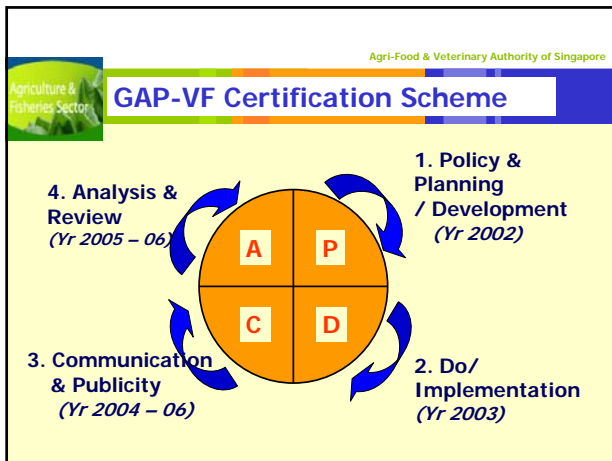
Modern Food Safety Approach

- ✓ Traceability
- ✓ Transparency
- Values adding

GMP/ HACCP **Process / Certification** **GMP/ HACCP** **Product check/ Sampling**

- Whole Chain QA
- Farm to Fork
- Process based certification

Assured safe & quality food



Agri-Food & Veterinary Authority of Singapore

Key Elements

- Objectives
- Standard
- Regulations
- Administration (Promotion, Training, Certification)
- Continual Improvement (Reviews)

**Value adding program
Voluntary Scheme**

Agri-Food & Veterinary Authority of Singapore

Defining Objectives

- 1. Promoting an internationally recognized food safety system at source**
 - National standard for safe farm production
- 2. Promoting shared responsibility in food safety**
 - Inculcate a sense of responsibility for food safety assurance in growers and all food supply chain players (particularly importers & retailers)
- 3. Providing a form of product differentiation mechanism & sharing benefits with stakeholders**
 - Premium prices/ Increase Sales
 - New markets/ Competitive
 - Retaining customers
 - Consumers' Confidence

Agri-Food & Veterinary Authority of Singapore

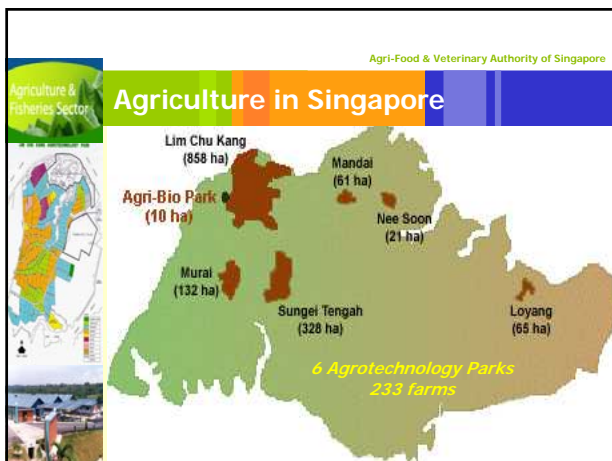
GAP-VF Standard

- 1. Food Safety Focus**
- 2. Benchmark against internationally recognized GAP Standard**
- 3. Suitable for local farm implementation**

GAP plus HACCP principles

- i. GMP & SSOP as pre-requisite
- ii. Systematic & scientific approach to risk assessment & management
- iii. Quality Management System

- Adopt internationally recognized food safety principles & systems
- Adapting from global GAP models to domestic farming context / farming systems
 - Tropical vegetable cultivation
 - Asian Cultural Practices
- Domestic dieting habits



Agri-Food & Veterinary Authority of Singapore

Vegetable Farming in Singapore

- 61 farms, 106ha (Ave. 2 ha), Intensive cultivation, Modern techniques
- Leafy vegetables (48%) and beansprouts (52%) (5% TC; 17,192 ton)

Tons


- Leafy vegetables
- Fruit vegetables
- Beansprout
- Mushroom
- Fruit
- Others

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GAP-VF Standard

Components

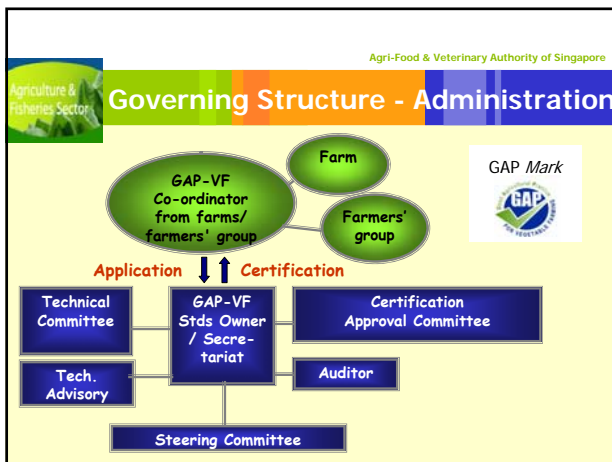
1. Farm location
2. Farm structure
3. Farm environment (soil/ water)
4. Farm maintenance (hygiene and cleanliness)
5. Farming practices/ methods/ techniques (pesticides and fertilizer applications, pest and disease management, harvesting & post-harvest handling)
6. Farm management (farm records, SOPs, traceability, staff training)



Agri-Food & Veterinary Authority of Singapore

Regulations of GAP-VF Certification

- Voluntary scheme
- Licensed domestic vegetable farms
- Certified by AVA
- Issue of GAP-VF Certificate
 - ▶ Compliance to GAP-VF standard (audited criteria)
 - ▶ GAP-VF Mark
 - Use for advertisement
 - Legislated AVA Act (Chapter 5) AVA (Certification Marks) Regulations 2004; Subject to sanctioning procedures (fines, warning, suspension & withdrawal)
 - ▶ Yearly certification
 - Fees (S\$500, S\$250)
 - Surveillance & monitoring
 - Renewable Certification



Agri-Food & Veterinary Authority of Singapore

GAP-VF Certification Process

Application	Implement GAP-VF system, Internal audit check, GAP-VF Coordinator, filing in application to AVA > GAP Extension Program
Form evaluation	Processing of application form and pre-audit of applicant (paper audit on farm documentation)
Farm Audit	Inspection and verification of farm practices and management, and documentation based on the GAP-VF system requirements (Farm visit and interview by auditors)
Evaluation / Certificate Award	Evaluation of auditors' report by the Certification Approval Committee

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Launch of GAP-VF Certification Scheme

6 Feb 2004



Government endorsement

10 farms have been awarded with GAP-VF Certificate

Safe vegetable production scheme launched



Retailer's Endorsement

FairPrice gives GAP-VF Scheme the thumbs-up


Agri-Food & Veterinary Authority of Singapore

Sustaining GAP-VF Certification Scheme

1. Continual promotion of GAP concept/ GAP-VF certification scheme to farms and fresh produce suppliers

- Ensure safe & wholesome fresh produce supply
- Value adding tool/ competitiveness

✚ **Potential overseas GAP-VF certification through Agrifood Technologies Pte Ltd, ATP**



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Sustaining GAP-VF Certification Scheme

2. Educating consumers

- ✚ Values of GAP
- ✚ "Farm to Fork" concept
- ✚ Enhance market recognition




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Sustaining GAP-VF Certification Scheme

3. Continual enhancement of GAP-VF standard & certification system through reviews (credible, affordable, valuable)

- ✚ Strengthen certification standard ref. to CODEX (WHO/ FAO), continual R&D on GAPs
- ✚ Enhance certification system & enforcement system by internal briefing and clarifications, and Train-the-Trainers > consistent implementation
- ✚ Think for farmers > affordable certification cost

- *Reducing regulatory cost for inspection, monitoring and surveillance on imported produce*
- *Encourage self regulation in food supply industry*



Agri-Food & Veterinary Authority of Singapore

Sustaining GAP-VF Certification Scheme

4. International & regional cooperation Harmonization & Capacity Building

- ✚ Engage governmental discussion to encourage GAP adoption (S-M bilateral meeting)
- ✚ Technical Cooperation with ASEAN-Australia (ASEAN GAP)
- ✚ Participation in global/ regional GAP forum concerning capacity building (APO, APEC)

- *Multiplier effect in assuring food safety of agri-produce and facilitating agri-food trade in the region*




Agri-Food & Veterinary Authority of Singapore

Meeting Our Challenges

Competitive Agri-business Safe Food



Assuring the safety of diversified fresh produce supply & sustaining the limited agriculture in Singapore



Thank You

AVA's website - Information on GAP-VF Certification Scheme
<http://www.ava.gov.sg/AgricultureFisheriesSector/GoodAgriPracticesCertification/>



- ## Presentation Outline
- Brief Country Description
 - GAP National Scheme (National market)
 - ChileGAP® Scheme (Export and National)
 - Summary

BRIEF GEOGRAPHICAL DESCRIPTION

- Continental Chile is located along the extreme south-west of south America.
- Limits:
 - To the east, the high Andean peaks (reaching 7,000 m above the sea level) form a natural border with Argentina and Bolivia.
 - For the north limit whit Peru.
 - For the south limit whit Chilean Antarctic and
 - For the west with the Pacific Ocean.

BRIEF GEOGRAPHICAL DESCRIPTION

- Continental Chile displays some extraordinary geographic features: it is a narrow strip of land, more than 4,200 kilometers long and with a maximum width of 375 kilometers and a minimum of 90, flanked on both sides by two large mountain ranges: the Andes Mountain Range and the Coastal Mountain Range. Between these two ranges lies the so-called Intermediate Depression.
- Despite the fact that there are some regional alterations, these physical features continue to reappear until they vanish in the southern sea.

NORTH:	HORTICULTURE AND FRUIT PRODUCTION CAMELID BREEDING
ATACAMA AND ELQUI:	FRESH FRUIT PRODUCTION LIQUOR PRODUCTION (PISCO) GOAT BREEDING/CHEESE
CENTRAL VALLEY:	FRESH FRUIT & HORTICULTURE WINE PRODUCTION ANNUAL CROPS
CENTRAL SOUTH:	ANNUAL CROPS/FRESH FRUIT WINE PRODUCTION FORESTRY
BORDELINE SOUTH:	CEREALS CATTLE BREEDING AND FATTENING FORESTRY
LAKE REGION:	CATTLE AND MILK PRODUCTION FORESTRY
EXTREME SOUTH:	BEEF AND LAMB PRODUCTION FORESTRY

BRIEF CLIMATE DESCRIPTION

Mediterranean Climate

- Between 30° and 45° latitude
- On western side of the continent
- Wet winters and dry summers

Source: U.S. National Park Service

Chilean agriculture

National population	15,116,435
Rural Population (%)	13.4
Participation of agricultural and forestry sector in PGB (%)	4.5
More agro industry (%)	15.8
Total export 2005 (millions USD)	40,573
Agricultural and forestry exports 2005 (millions USD)	8,013
Agricultural and forestry imports 2005 (millions USD)	1,835

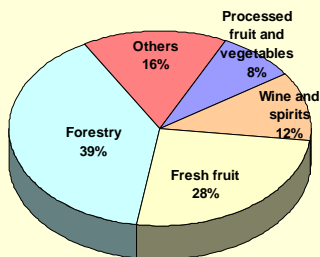
Chilean Agriculture

The recently development of agricultural and forestry sector in Chile have a strongly relation whit exports and international markets.



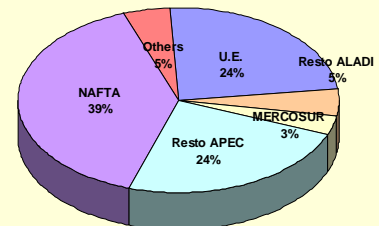
Agricultural and forestry exports

- Products (year 2005)



Agricultural and forestry exports

- Markets (year 2005)



GAP National Scheme

- The rules and conventions of international commerce affect directly the agricultural production system in Chile and the GAP procedures begins to be a exigency of many markets in first years of 90's decade.
- Therefore, whit the purpose of accelerate the development an implementation of GAP in Chile, the Ministry of Agriculture established the "GAP National Commission" in march of 1991.



GAP National Scheme

- The objectives of this Commission was to advice the Ministry in the development of policies to help the incorporation of GAP concepts in the Chilean agriculture productive processes.
- The Commission is presided for the Sub-secretary Agricultural and is conformed by public institutions and represents of private sector.
- The National Commission develop 16 GAP general regulations for different fruit, horticultural and animal production
- <http://www.buenaspracticas.cl/>

General Information

- 1.000 EUREPGAP certified farmers at the national level (Nov. 2005)
- 25.000 EUREPGAP certified hectares
- 40% of the exportable volume of the Chilean fruit and horticultural products are certified under GAP regulations (among others: EUREPGAP, ChileGAP, U.S.GAP, Nature's Choice)
- 6 international GAP certification entities operating in Chile
- Over 150 consulting and training companies supporting the EUREPGAP implementation process at the national level.
- Chile has a national regulatory framework that is compatible with the EUREPGAP requirements (food safety and working conditions)

ChileGAP® Standards

- The Chilean Fresh Export Fruit and Vegetables Good Agricultural Practices Scheme (ChileGAP) is a private Good Agricultural Practices Program (GAP) and Certification Scheme which has been developed by the Fruit Development Foundation (FDF) asked by the Chilean Fresh Fruit Industry.
- Harmonizes the most widely accepted GAP in Europe, the United States and the local legislation.
- Has been developed to fulfill the increasing interests of growers and consumers of fresh fruits and vegetables produced in Chile, to work within guidelines to assure Food Safety, Environment Protection as well as worker's health, security and welfare.
- ChileGAP® is a registered trademark and their use is regulated by the ChileGAP executive secretariat
- www.chilegap.com

ChileGAP® Certification Scope

- ChileGAP® is applicable to **fresh fruits and vegetables** obtained from Chilean orchards for export and domestic market.
- It is also applicable to **all the stages during production**, before sowing (including site selection, type of seed, rootstocks and commercial variety) until harvest and product handling sites under the responsibility of Growers.
- The participation of Growers and Certification Bodies (CBs) in ChileGAP® is **voluntary, non-discriminative and is based on an objective approach**.

ChileGAP® OBJECTIVES

- **Objective 1:** To assure that during the fruit and vegetable production the following principles are taken into consideration:
 - Food Safety: Is based on criteria derived from HACCP and national and international regulation such as Codex Alimentarius
 - Environment protection: Considers specific GAPs to decrease the negative impacts of agricultural to the environment
 - Worker's health, security and welfare: Includes responsibilities needed to maintain levels of welfare and adequate safety to the workers taking part during the productive process
 - Animal welfare where applicable.
- **Objective 2:** To develop standards and guidelines for an independent, recognized third party certification bodies base on ISO 65 and EN 45011.
- **Objective 3:** To assure that that only farms that reach a determinate GAP compliance level can be ChileGAP certified.

ChileGAP® normative documents

The normative documents that conforms ChileGAP® Scheme are:

- **General Regulations:** This document establishes the norms regarding the certification application, granting and maintenance, the rights and responsibilities involved, as well as Appendix and Annexes that describe some detailed specific aspects.
- **Control Points and Compliance Criteria:** This is a technical document that contains all the items and control points that will be verified during the inspection and all the criteria by which the compliance will be verified
- **Checklist:** Corresponds to a form that is used to carry out the inspection and evaluate the compliance of each of the Control Points found in the ChileGAP® Standard

ChileGAP® Control Points and Compliance Criteria

- 1 TRACEABILITY
- 2 RECORDS
- 3 VARIETIES AND ROOTSTOCKS
- 4 GENERAL CONDITIONS ON THE FARM
- 5 SOIL AND SUBSTRATA HANDLING
- 6 FERTILIZATION
- 7 IRRIGATION
- 8 HANDLING OF PHYTOSANITARY PRODUCTS
- 9 BASIC SERVICES FOR THE PERSONNEL
- 10 HARVEST
- 11 PRODUCT HANDLING AREAS
- 12 MANAGEMENT OF WASTE AND POLLUTANTS: RECYCLING AND RE-USE
- 13 LABOR CONDITIONS AND LABOR SAFETY
- 14 ENVIRONMENTAL ISSUES
- 15 HANDLING OF COMPLAINTS

ChileGAP® Certification

- Certification can be asked by:
 - Individual agricultural grower (Grower)
 - Group of agricultural growers (GAG)

Certification

- The producer interested in the certification process establish a contractual relationship signed with a Certification Body.
- ChileGAP® authorizes and issues licenses to approved Certification Body's who are empowered to carry out ChileGAP® audits and issue certificates of compliance to ChileGAP® standard,
- The certificate is the document that a Grower or Group of Agricultural Growers obtain as an indicator of compliance of the established ChileGAP® requirements.

ChileGAP® Certification

- Grower or GAG can obtain a “certification” or “a report on the progress” when obtain at least the following compliance percentages with the control points:
 - 100% of the Mayor Must points
 - 95% of the Minor Must points and
 - 70 % of the “Must “ points
- Requirement for ChileGAP® Certification
 - 100% of the Mayor Must points
 - 95% of the Minor Must points and
 - 70 % of the “Must “ points
- Requirement for ChileGAP® Report on progress
 - 100% of the Mayor Must points and
 - 70 % of the other Minor must and must points

ChileGAP® Implementation

1. Farmers and exporting companies receive technical assistance, training and supervision during the implementation process.
2. An audit is done at the end of the implementation process
3. The ChileGAP® standard is certified by independent accredited certification bodies that have received accreditation ISO Guide 65/ EN 45011.
4. The ChileGAP® program meets all traceability requirements for fresh produce:
 - Information requirements for Food Safety
 - Farming records audited fro production management
 - Record maintenance and traceability

ChileGAP® Today

- In 2004:ChileGAP® achieved the full equivalency to EUREPGAP.
- In 2005: After a very complex process which sought to harmonize both, the European and US main GAP and Food Safety Standards, ChileGAP® gained the recognition from both standards. With this, ChileGAP® fulfill a long awaited objective - the need to create one overall harmonized GAP standard recognized by European as well as the USA market; 145 producers certificated.
- 2006: Chilean growers and exporters, only need one audit in order to obtain a certification recognized in both markets, which implies saving costs in the certification and in the implementation process.
- Today Chile has the most modern GAP and food safety Standard in the world, developed to help Chilean growers and exporters to meet even the most demanding requirements made by sophisticated markets.
- Future works: acknowledged of more markets; more global harmonization.

ChileGAP®



CLASIFICACION TOXICOLOGICA			
CONCENTRACION	TIPO DE LA	CONSEJO	PRECAUCIONES
de la sustancia	evaluacion	de la sustancia	de la sustancia
Alta	Muy tóxica	NO	Muy Tóxica
Alta	Tóxica	NO	Tóxica
Mediana	Preocupante	X	Preocupante
Baja	Poco preocupante		Cuidado
Muy baja	Poco preocupante		Cuidado

Good Agricultural Practice Program in China

Mu Shaofei

Background

- ★ “Agro-Food Safety Program”
 - laws and regulations
 - guarantee system on standards, monitoring and certification
 - control measures for inputs and environment protection
- ★ Bring in, Establish, Demonstrate and Generalize Good Agricultural Practice

2

to study and exchange on GAP in the E.U. and the U.S.A

to formulate the agro-food technical norms of GAP

种植业产品质量安全全程控制（GAP）技术规范
（草案）

农产品质量安全全程控制技术规范（GAP）
指引与制定规范

畜禽质量安全全程控制（GAP）技术规范
（草案）

农产品质量安全全程控制技术规范（GAP）
指引与制定规范

4

Demonstration Bases of GAP

农业部948项目生产示范基地

“农产品质量安全全程控制示范基地”

项目地点：此项目以山东烟台“良好农业操作规范”为

项目重点：农产品质量安全全程控制示范基地

项目内容：农产品质量安全全程控制示范基地

项目意义：农产品质量安全全程控制示范基地

农业部948项目生产示范基地

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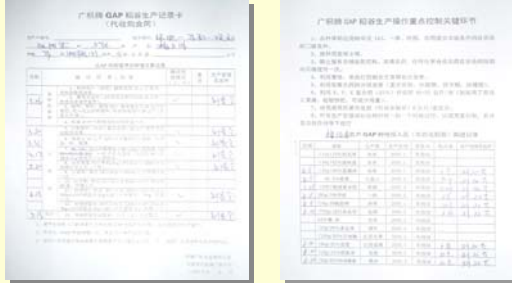
项目意义：农产品质量安全全程控制示范基地

technical norms of GAP

6

1. implementing GAP by combination and innovation

“record cards of procedures”



2. strengthening the training of practitioners

nearly 50000 person-times practitioners were trained




3. strengthening international cooperation and exchange

engaged experts to participate in the GAP documentation modification and guidance




Thank You !

www.ita99.com/bia






GAP: Mexico Program




M. Sc. Victor Miguel García Moreno
Fresh Produce Food Safety Underdirector
National Service for Animal and Plant Health, Food Safety and Food Quality





Capacity Building Seminar on Good Agricultural Practices (GAP)
for Developing APEC Economies
September 19 - 21, 2006, Manila, Philippines



- Promotion
- Certification
- Influenced by commercial & Government standards
- GAP's International standards homologation
- Commercialization





Guidelines for the voluntary implementation of Good Agricultural Practices in the production and packing processes for fresh produce to consumption by humans

<ul style="list-style-type: none"> ▪ Water for agricultural use ▪ Field history and management ▪ Use of fertilizers ▪ Pesticide use and management ▪ Product harvest ▪ Field Packing ▪ Product handling ▪ Water for use and human consumption ▪ Rest rooms and hand washing stations 	<ul style="list-style-type: none"> ▪ Personal practices ▪ Packinghouses design ▪ Installations ▪ Water used after harvest ▪ Post harvest treatments ▪ Cool rooms and warehouses ▪ Transport ▪ Hygiene items ▪ Operation Manuals ▪ Traceability
---	--

- Voluntary program for Mexican firms.
- Fresh fruits and vegetables, recently included Nuts and Dehydrated Pepper
- GAP General Guidelines and GAP Protocols for seven specific products
 - **2006**
 - 91 certified firms
 - 108 Production units (fields and green houses)
 - 52 packing units
 - More than 1,600 firms registered
- Acknowledgement of Agricultural areas with Contamination Risk Reduction Systems







▪ Alianza Para el Campo Program




Plant and Animal Health & Food Safety Program





27 from 32 states with this Program established

Helping Mexican Firms when Food Safety issues related to GAP's are in place, inside national and international trade or exchange



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National Service for Animal and Plant Health, Food Safety
and Food Quality

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www.senasica.sagarpa.gob.mx

Collaborators:
M. Sc. Tanya Hernandez Muñoz
M. Sc. Ana Elena Albarrán Reyes

Fruits and Vegetable production in Viet Nam

Usually Agricultural practices to good agricultural practices (GAP) orientation

Dr. Le Thanh Hoa

Institute of plant protection (IPP)
Ministry of Agricultural and Rural development (MARD)

Contents

1. Basic factors of GAPs
2. General Information on fruits and Vegetable production in Vietnam
3. GAPs Problems and Constrains
4. GAPs strategies for fruits and vegetable production in Vietnam

1. Basic factors of GAP

■ Soils

clean without contamination of chemical, physical and germ agents

■ Water

Clean water for Irrigation and processing

■ Agricultural practices

Planting, fertilization, pesticide application, harvesting

■ Post harvest

Post harvest handling, packing and market distribution

2. General information on Fruits and Vegetable production in Vietnam

■ areas

8 % of agricultural cultivated areas (1.038 mil ha), fruits about 4% and vegetable about 4% include: Crucifer vegetable, cucumber, tomato, onion, beans, chilli,

■ Productivity

13,2 % of total agricultural products
16 % value agricultural production

■ Quality and quantity

300,000 ton of clean fruits and vegetables,
about 5 % of fruit and vegetable cultivated areas (2003)

3.1 Problems

■ Farm size

Small and scatter

■ Knowledge

Lack of expertise

■ Capital

Investment for new application

■ production

high amounts of Pesticides, fertilizer; storage and transportation are sub-optimal

3.2 Constrains

■ Social factors

Change of lifestyle, tourism

■ Economic factors

Import and export, supermarket systems

■ Demand food safety an food quality

Residues under the limited level, without contamination of germs, right quality fresh and fresh eating quality

4. GAPs strategies for fruits and vegetable production in Vietnam

- **1996 MARD and Appropriate Institutions has build up an manual for clean fruits and vegetable production.**

training farmers, demonstration field, on farm training

- **Build up Protocol to applied GAPs for fruit and vegetable production from 2006 - 2010.**

- Concentrate in the main fruits and vegetable production province in Hanoi and Hochiminh cities
- to ensure the foods safety and right quality of fruits and vegetable.

■ safety fruits and vegetables production

- Build up project, production scale, assessment and synchronic solutions
- Improve the infrastructure of production areas (financial support)
- Communication to farmers. control of production, quality and used of products
- Establish the quality control methods in the field, the large production areas need a PP technician
- encourage the enterprise and production unit to make a sells contract with farmer
- MARD in coordinate with Agricultural production department (APD), Plant Protection Department (PPD), issue on product quality, the quality control and a protocol for safety fruits and vegetable production – launch into early 2007


Thank you very much for your attention



Highlights of Economy GAP Programs Implementation

Dr. Leonila M. Varca
and
Dr. Alice Alma C. Bungay
(Project Consultants)

"Capacity Building Seminar on Good Agricultural Practices (GAP) for Developing APEC Economies"
Richmonde Hotel, Ortigas, Manila, Philippines
19-21 September 2006



Driving Impetus for GAP


- Dramatic changes in food consumption
- Enormous change in the diversity and choice of the food supply

↓

GLOBALIZATION


↓

More demand for agricultural produce



Globalization...

- More demand for agricultural produce, particularly horticultural crops due to:
 - General economic growth
 - Changing lifestyle of the population
 - Movement in regional and international market
 - Consumer demand




Why the Increased Demand for Horticultural Products?

- Export value of horticulture products steadily increasing, with US\$ 34B industry
- Developed countries getting more than half the share of export industry
- Developing countries taking a big share in the international export and trade, example:
 - avocados from Chile and Mexico (53%)
 - mangoes from Mexico, Philippines, and Brazil (62%)




GAP Schemes Being Implemented / for Implementation Among APEC Countries

- SALM Method (Malaysia)
- GAP for Vegetable Farming (VF) (Singapore)
- Q System (Thailand)
- IndonGAP (Indonesia)
- DA-GAP (Philippines)
- CHILE EAP (Chile)
- GAP Program (Mexico)
- Gap Program (China)
- GAP Program (Viet Nam)



Gap Scheme

- Voluntary
- Major emphasis (in varying degrees):
 - Food quality and safety of consumers
 - Environmental sustainability
 - Farm management
 - Worker's safety / hygiene
 - Documentation / traceability / recall



International GAPs



- USA and Australia
 - Australia: SQF 1000, SQF 2000 and Freshcare schemes
 - USA: created its own version of GAP
 - Soil and water management
 - Organic and inorganic fertilizer
 - Animal exclusion and pest control
 - Worker health and safety
 - Harvesting and cooling
 - Trace-back
 - * USA GAP focuses on microbial contaminants
 - * Separate GAP for pesticides

International GAPs



- Irish GAP
 - Ireland introduced an equivalent manage system
 - Actually termed the Code of Practice for the Food Safety in the Fresh Produce
 - Emphasis on:
 - General hazard control
 - Water farmyard manure
 - Compost and bio-solids
 - Safe use of pesticides and biocides
 - * No emphasis on traceability

International GAPs



- South American GAP
 - An offshoot of a workshop conducted in Brazil in 2002, the *Boas Practicas Agricolas*
 - Based on CODEX standards
 - Covers food safety from a microbiological point of view
 - Published by FAO in 2003

International GAPs



- EUREPGAP
 - Initially designed to encourage adoption of commercially viable farm assurance schemes to minimize use of agrochemicals
 - Comprehensive
 - More detailed components

Continued...

International GAPs



- EUREPGAP
 - Added features:
 - Waste and pollution management, recycling and reuse
 - Recordkeeping
 - Internal self-inspection
 - Environmental issues
 - Complaint handling

International GAPs



- FAO GAP
 - Undertook a major project to introduce GAP in a number of countries in the world
 - Aims to be the benchmark to provide equivalency for all existing GAP systems

International GAPs



- ASEAN GAP
 - Developed to prevent risk associated with production and post-harvest handling of fresh fruits and vegetables
 - Focus on:
 - Food safety
 - Environmental impacts
 - Worker health, safety, and welfare
 - Produce quality

International GAPs



- Chile GAP
 - Most modern GAP and Food Safety Standard in the world
 - Implemented GAP in 1991
 - Private GAP program unlike government-initiated GAP schemes of other countries
 - Achieved full equivalency to EUREPGAP and recognized by European and USA markets

Continued...

International GAPs



- Chile GAP
 - * Important control points and compliance criteria (added features):
 - Variety and root stocks
 - Soil and substrata handling
 - Handling of phytosanitary products
 - Labor safety and labor conditions
 - Basic services for personnel

International GAPs



- Mexico GAP
 - Voluntary program of Mexican farms
 - Include both production and packing process for fresh produce
 - Full implementation of GAP

Continued...

International GAPs



- Mexico GAP
 - * More emphasis on worker's hygiene and practices:
 - Water for use and human consumption
 - Restrooms and handwashing stations
 - Personal practices
 - Operation manual

International GAPs



- Viet Nam GAP
 - Emphasis is on fruit and vegetable production
 - Emphasis on farm environment and post-harvest facilities
 - Follows the 4 basic modules of the ASEAN GAP

International GAPs



- China GAP
 - AGRO-Food Safety program which guarantees system on standards monitoring and certification
 - Control measures for inputs and environmental protection
 - Emphasis on:
 - Documentation: record cards of procedure
 - Capacity-building of GAP practitioners (nearly 50,000 practitioners trained)

Future Directions



- Harmonization of different GAPs
- Establish equivalency with other international GAPs
- “Big” agricultural producers can easily comply with GAP requirements
- Critical challenge still lies on taking into account the interest of small-scale producers and farmers in developing countries for **SAFETY, ECONOMY, and SUSTAINABILITY OF DOMESTIC PRODUCTION and LIVELIHOODS SECURITY** (FAO, 2006)

THANK YOU!



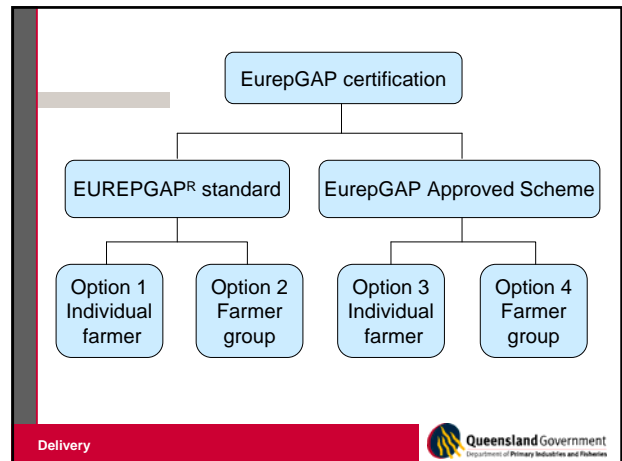
Capacity building seminar on GAP for developing APEC economies
Manila, Philippines, 19-21 September 2006

Options for EurepGAP certification

Scott Ledger
Department of Primary Industries and Fisheries
Queensland, Australia




Delivery



EurepGAP global impact

- 35 000 certified farmers
- 62 countries with EurepGAP certified farmers
- 8 EurepGAP approved schemes + 7 applicants
- 89 approved certification bodies


Source: EurepGAP Oct 2005



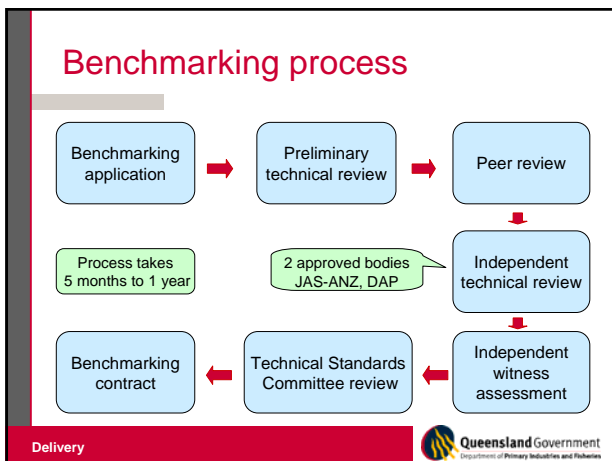
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Options for benchmarking

Normative document	Options
Control Points and Compliance Criteria (CPCC)	Applicant scheme CPCC is benchmarked against EUREPGAP [®] CPCC
General Regulations (GR)	Applicant scheme operates with EUREPGAP [®] GR or applicant scheme GR is benchmarked against EUREPGAP [®] GR




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EurepGAP fees

Participant	Type of fee	Amount (EUR) / scope
Farmer	Certification license Registration	20 + certification body fee 3-100
Certification body	Evaluation License Online exam	300 3000 100 per auditor
Equivalent certification system owner	Administration Farmer registration Farmer database Independent reviewer	2550 3-100 to 4450 max 1 per extra farmer 5250 + extra expenses

Source: EurepGAP fees to be introduced on 1st January 2007



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Guide for EurepGAP in Australia

Joint industry-government working group developed guidelines in 2004

Chapter 1: Traceability

EUREPGAP [®] control points	EUREPGAP [®] compliance criteria	Reference to Australian system
1.1 Major. Is EUREPGAP [®] registered product traceable back to and trackable from the registered farm where it has been grown?	There is a documented traceability system that allows EUREPGAP [®] registered product to be traced back to the registered farm or group of registered farms and tracked forward to the immediate customer	Freshcare Code of Practice 2 nd edition Element F2 SQF 1000 ^{CM} 3 rd edition Element 4.6 SQF 2000 ^{CM} 4 th edition Element 4.6


"Guidelines for implementing EUREPGAP[®] for Australian fresh fruit and vegetable producers" - www.daff.gov.au/publications

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Individual farmer certification

Pink Lady Australia apple farmers


- ➔ Model EUREPGAP[®] manual developed
- ➔ Model manual adapted to suit individual farm
- ➔ Self inspection by farmer using EUREPGAP[®] checklist
- ➔ External audit by approved certification body
- ➔ EUREPGAP[®] certification for individual farmer

Delivery 

Farmer group certification

Gayndah Packers Cooperative – citrus farmer group


- ➔ Quality management system developed for cooperative
- ➔ Registered farmers implement compliance criteria
- ➔ Self inspection by each farmer using EUREPGAP[®] checklist
- ➔ Internal audit of QM system and inspection of registered farmers
- ➔ External audit by approved certification body
- ➔ EUREPGAP[®] certification for Gayndah Packers Cooperative

Delivery 

EurepGAP approved scheme

New Zealand GAP

- 1999 NZ Fresh Produce Approved Supplier Program launched by NZ Vegetable and Potato Growers Federation
- ↓
- 2000 NZ Fruitgrowers Federation joined the program
- ↓
- 2006 Program benchmarked and equivalence gained to EUREPGAP[®] and Global Food Safety Initiative (GFSI)
- ↓
- 2006 Program renamed New Zealand GAP (Horticulture NZ)

Delivery 

Important messages

- Individual farmers or farmer group can be certified to EUREPGAP[®] or EurepGAP approved scheme
- Approved scheme is benchmarked against EUREPGAP[®] General Regulations and Control Points and Compliance Criteria
- Countries with low export level – support individual farmers or farmer groups to achieve EUREPGAP[®] certification
- Countries with high export level – consider benchmarking industry/ government schemes to seek equivalence with EUREPGAP[®]
- Education of farmers is essential to achieve certification

Delivery 

FDA GAP TRAINING PROGRAMS

Capacity Building Seminar on Good
Agricultural Practices for Developing APEC
Economies
September 19-21, 2006

Cecilia P. Gaston
and Arthur Miller, Ph.D.
Exponent, Inc, USA

What are GAPs?

FDA defines GAPs as the basic
environmental, human health, and
sanitary operational practices that are
necessary for the production of **safe,
wholesome fruits and vegetables.**

GAP Train-the-Trainer Program

Features:

- ❑ Covers wide range of topics on improving safety and quality of fresh fruits and vegetables
 - ❑ Designed for domestic and international trainees
 - ❑ Five-day in-country training course for extension specialists and other individuals with responsibilities for education and outreach on produce/food safety
 - ❑ Conducted by a teaching team of US government representatives and academic faculty
-

GAP Train-the-Trainer Program

Objectives:

To train workers in:

- ❑ Understanding roles in reducing foodborne illnesses
 - ❑ Improving farming practices
 - ❑ Provide exporters with adaptable framework of practices
-

GAP Train-the-Trainer Program

Design:

- ❑ Lectures
 - ❑ Demonstrations
 - ❑ Problem analysis
 - ❑ Farm and production facility visits
 - ❑ Evaluation
-

GAP Train-the-Trainer Program

Basic training material:

"Improving the Safety and Quality of Fresh Fruit and Vegetables: a Training Manual for Trainers"

- ❑ Developed by JIFSAN – Joint Institute for Food Safety and Applied Nutrition, a research and education institute established by the U.S. FDA and the University of Maryland in 1996
 - ❑ JIFSAN – takes the lead in organizing international training programs on GAPs for the safe production of fresh fruits and vegetables.
-

GAP Train-the-Trainer Program

Range of subject matter:

- Principles on improving safety of fresh fruits and vegetables
 - Good agricultural practices in the farm
 - Handling, storage, transport of fresh produce
 - Laws and regulations
 - Quality assurance issues
 - Developing effective training courses
-

GAP Train-the-Trainer Program

Specific subjects:

- Principles on improving safety of fresh fruits and vegetables with modules on:
 - Safety hazards in fresh produce
 - Consumer health
 - Produce safety and trade
-

GAP Train-the-Trainer Program

- Good agricultural practices, with modules on:
 - Soil and water
 - Fertilizers
 - Animal exclusion and pest control
 - Worker health and safety
 - Harvesting and cooling
-

GAP Train-the-Trainer Program

- Handling, storage, transport of fresh produce with modules on:
 - Produce cleaning and treatment
 - Packing, storage, transport
 - Equipment cleaning and sanitation
 - Laws and regulations with modules on:
 - US regulations
 - Investigating foodborne disease outbreaks
 - international regulations
-

GAP Train-the-Trainer Program

- Quality assurance issues with modules on:
 - Safety and quality assurance
 - Quality attributes, grades, and standards
 - Quality attributes and spoilage
 - Developing effective training course with module on:
 - Identifying needs and setting objectives
 - Organizing training content
 - Conducting and evaluating course
-

GAP Train-the-Trainer Program

Practical exercises:

- Appropriate demonstrations/ experiments (e.g. water as contaminating agent; handwashing; chlorination; fresh produce quality)
 - Problem-solving exercises (e.g. traceback investigation; planning an effective training course)
 - Field site visit
-

GAP Train-the-Trainer Program

From 1999, GAP Train-the-Trainer Programs conducted in:

- Brazil
- Dominican Republic
- Guatemala
- Honduras
- Korea
- Mexico
- Peru
- Puerto Rico
- Thailand
- Trinidad

Modules for GAPs for Fresh Fruits and Vegetables

- ❑ Covers operations from farm-to-table chain for fresh fruits and vegetables
- ❑ Environmental safety (soil and water)
- ❑ Organic and inorganic fertilizers
- ❑ Animal exclusion and pest control
- ❑ Worker health and safety
- ❑ Harvesting and cooling

Soil and Water

Module highlights:

- ❑ Identification of potential microbial and chemical contamination associated with prior use of land being considered for agricultural production of fruits and vegetables
- ❑ Identification of potential produce contamination associated with water resources and quality
- ❑ Summary of GAPs to prevent contamination of water resources

Fertilizers

Module highlights:

- ❑ Organic fertilizer use and hazards associated
 - Composting
 - Animal manure
 - GAPs in managing organic fertilizers
- ❑ Inorganic fertilizer use and associated hazards

Animal Exclusion

Module Highlights:

- ❑ Understanding the potential for produce contamination associated with animals in the production area
 - Microorganisms can be found in animal hair, feather, hide, etc. (Salmonella, Staphylococcus, Streptococcus)
 - Contamination from animal feces
- ❑ Keeping animals from production area, including cleaning considerations of surrounding areas

Pest Control

Module Highlights:

- ❑ Selection of appropriate pest control system during field production, packaging, storage, distribution
- ❑ Periodic inspection and maintenance of facilities with record-keeping procedures
- ❑ Pesticide use, handling, application, and disposal should comply with local registered approvals
- ❑ Compliance with established legal limits (MRLs)

Worker Health and Safety

Module highlights:

- ❑ **Assuring worker health** increases productivity and aids in preventing microbial contamination of produce
 - ❑ **Drinking water** should be potable – free of microorganisms and/or chemical substances that can jeopardize health of person consuming
 - ❑ **Basic personal hygiene practices of workers** would minimize microbial contamination of produce.
-

Worker Health and Safety

- ❑ Train workers to report any disease symptoms to supervisors
 - ❑ Sick employees should not participate in activities involving direct contact with fresh produce or packing materials until they have clearance from a licensed healthcare provider.
-

Harvesting and Cooling

Module highlights:

- ❑ **Minimizing contamination during harvesting** (Manual harvesting preferred due to possible undesirable changes in produce from mechanical harvesting – water loss, increased respiration, browning, penetration of microorganisms, etc)
 - ❑ When **packing in the field**, good sanitation procedures should be followed in handling containers and packing materials
 - ❑ **Water** used for post-harvest operations should be potable and free of disease-causing organisms. Procedures to assure good wash water quality are critical.
-

Harvesting and Cooling

- ❑ **Use of disinfectants** for processing water – if chlorine is used, important to maintain the free (unreacted) chlorine concentration at all times, monitoring on hourly basis and changing recirculated water daily.
 - ❑ **Cooling** highly perishable fresh produce to extend shelf-life – mainly for quality but can also inhibit growth of pathogenic bacteria in produce.
 - ❑ **Air or water cooling systems** should be maintained to be free from pathogenic contamination.
-

National Good Agricultural Practices (GAPs) Program

- ❑ Established in 1999
 - ❑ Funded by Cooperative State Research, Education, and Extension Service (CSREE), USDA and U.S. FDA)
 - ❑ Based at Cornell University
<http://www.gaps.cornell.edu/index.html>
 - ❑ Collaborators in 24 States
 - ❑ Created many educational materials to help implement good agricultural practices in the farm
-

GAP: Food Safety Module

- Capacity building seminar on GAP for developing APEC economies
Manila, Philippines, 19-21 September 2006
- Dr Robert Premier

1

Food safety

- Microbiological
- Chemical
- Physical

2

Chemical food safety risks and GAP



3

People Safety



- Those who prepare and handle chemicals
- Those who enter sprayed area
- Families of those who handle pesticides
- Bystanders and people in spray drift area
- Hospital admissions from on-farm poisonings
- Link between prostate cancer & arsenical pesticide use
- Anecdotal reports of higher problem with health in people that work with chemicals in farms

4

Environment Safety



- Wildlife
- Soil residue
- Environmental management systems

5

Consumers


- Do not want chemical contaminants
- Any GAP should try to reduce the risk of chemicals being present in produce at point of sale
- Chemical GA are all about managing the risk

6

'Managing Chemical Risk'

Risk management approach to:

- selection and purchasing
- transport
- storage
- use
- clean up and disposal



7

Risk Management

- Identify the hazard (problem)
- Collect information
- Use information to minimise risk

```

graph LR
    A[Identify hazards] --> B[Assess risks]
    B --> C[Control risks]
    
```

8

Risk Controls - Storage

- Area locked
- Away from light and heat
- Original containers
- Containers with manufacturer's labels
- Labels intact and legible
- Containers sealed
- Segregated according to class
- Storage surfaces resistant to chemical attack
- Any leaks contained, cannot affect other chemicals
- Spill kit available




9

Risk Controls - Handling

Equipment Maintenance

Work practice

Protection

- Gloves
- Full cover clothing plus for spraying
- Washable hat
- Glasses/goggles
- Non leather footwear



Risk Controls – Clean up

- Containers triple rinsed
- Amount of chemical mixed minimised
- Remaining chemical diluted >1:10 with water
- Diluted chemical applied to already sprayed area or where will not contaminate land/water
- Equipment washed down
- PPE washed, checked and stored appropriately
- Clothing washed separately to other clothing
- Personal hygiene

11

Risk Controls – Disposal

- Containers disposed of through approved collection service
- Unwanted chemical concentrate and waste from spill containment disposed of through approved collection service

12

Risk Controls – Spills

- Containment
- Spill kit with absorbent
- Documented instructions

13

Documentation

Storage	<input checked="" type="checkbox"/> MSDS (FS)
	<input checked="" type="checkbox"/> Register (FS)
	<input checked="" type="checkbox"/> Risk assessments (Env, FS, OHS)
	<input checked="" type="checkbox"/> Incident reporting (OHS)
Use	<input checked="" type="checkbox"/> Record of Use (FS)
	<input checked="" type="checkbox"/> Incident reporting (OHS)
Clean up	<input checked="" type="checkbox"/> Incident reporting (OHS)
Spills	<input checked="" type="checkbox"/> Incident reporting (OHS)
	<input checked="" type="checkbox"/> EPA reporting (Env)

14

Chemical food safety and GAP

- Difficult to differentiate between consumer food safety, workers health and safety, environmental safety.
- Not many GAP cover chemical food safety satisfactorily
- Chemical food safety is evolving all the time
- Must be based on CODEX
- **Consumers rate this as the most important of the food safety issues**

15

16

Food safety module

- **Site history and management**
- **Planting material**
- **Fertilisers and soil additives**
- **Water**
- **Chemicals**
- **Harvesting and handling produce**
 - Equipment, materials and containers
 - Buildings and structures
 - Cleaning
 - Animals and vermin control
 - Personal hygiene
 - Produce treatment
 - Storage and transport
 - Traceability and recall

17

Food safety module

- **Training**
- **Documents and records**
- **Review of practices**

18

GAP: ENVIRONMENTAL SAFETY MODULE

Capacity Building Seminar on Good Agricultural Practices for Developing APEC Economies
September 19-21, 2006

Cecilia P. Gaston
Exponent, Inc., USA

Associated Hazards in Soil and Water

- Fecal and chemical contamination
- Organic and hazardous wastes
- Agricultural chemicals
- Contamination by silt, runoff, spray drift
- Adjacent farming activities
- Industrial activities

GAP Measures

Goal: Prevention of microbial and chemical contamination of produce through:

- Soil in and around crops
- Water, including irrigation, used during growing, harvesting, packing and distribution of fresh produce
- Animals entering and in adjacent farms
- Manure application and pest control practices

GAP Measures

Soil	<ul style="list-style-type: none"> ▪ Site history ▪ Flooding incidences
Water	<ul style="list-style-type: none"> ▪ Maintain quality ▪ Appropriate irrigation method
Animals	<ul style="list-style-type: none"> ▪ Prevent access to farm and water ▪ Field sanitation practices
Manure handling	<ul style="list-style-type: none"> ▪ Proper preparation/application ▪ Avoid side-dressing
Pest control	<ul style="list-style-type: none"> ▪ Sound pest control system ▪ Follow pesticide registration

Evaluation of Site History

- **Determine if land has been used for:**
 - animal feeding or domestic animal production
 - garbage, toxic or industrial waste disposal
 - mining activities, oil or gas extraction
 - for barns or if farm animals are being produced on land adjacent to or a short distance from the site
- **Additional information - if land:**
 - has experienced serious flooding
 - been treated in an uncontrolled manner with fertilizers and/or pesticides

Evaluation of Site History

Prior use of land for animal feeding or production:

- Greatly increase risk of contamination of fruit and vegetables with pathogens commonly found in intestinal tract of animals
- Potential for contamination influenced by the time passed since land has been used for the purpose
- Risk for contamination also influenced by temperature, sunlight and relative humidity

Evaluation of Site History

Prior use as garbage or waste disposal site:

- Risk of contamination from decomposing organic matter and maybe, fecal material
- Depending on garbage content, soil microbial loads can be extremely high
- Soil may contain harmful chemicals or toxic contaminants

Evaluation of Site History

Prior use for mining or petroleum extractions:

- Potential risk of contamination with heavy metals or hydrocarbons
- Rainfall and subterraneous water flow need to be evaluated
- Presence of toxic substances in the soil need to be determined

Evaluation of Site History

Adjacent land used for animal production:

- Risk of possible contamination from drainage and water currents flowing near these areas
- May be necessary to create physical barriers or channels to divert water which might carry contaminants from these animals

Evaluation of Site History

Heavy flooding incidences:

- Increase sources of contamination
 - Pathogens and chemical contaminants from water run-off from other regions
 - Dead animals and still water remaining after floodwaters recede can lead to significant bacterial hazards.
- Microbial analysis may assist in identifying contamination.

Careful Manure Handling

Minimize risk of microbial contamination by:

- Proper and thorough composting of manure
- Incorporating raw manure into soil before planting
- Avoiding top-dressing of plants

Careful Manure Handling

- **Consider source, storage and type of manure used**
 - Store manure as far away as possible from areas where produce is grown.
 - Age manure for at least 6 months prior to application.
 - Erect physical barriers to prevent run-off and wind drift of manure

Careful Manure Handling

- **Plan manure application timing carefully:**
 - Apply manure in the fall or at the end of the season to all planned crops, when soils are warm, non-saturated and cover-cropped.
 - Incorporate into soil immediately after application
 - Do not harvest vegetables or fruits until 120 days after manure application.
 - Document rates, dates, and locations of manure application.

Side-dressing Crops with Manure

- **DO NOT** side-dress fruit and vegetable crops with fresh or slurry manure.
- If side-dressing is required, well-composted or well-aged (>1 year) manure should be used.

Field Sanitation & Animal Exclusion

- Stay out of wet fields to reduce the spread of plant or human pathogens.
- Clean tractors used in manure handling prior to entering produce fields.
- Keep grass short to avoid presence of rats, reptiles, and other pests.
- Remove all unnecessary equipment.
- **DO NOT** allow animals, including poultry or pets, to roam in crop areas, especially close to harvest time
- Minimize wild animal and bird traffic in ponds and though fields where possible.

Pest Control

- Insects and rodents most commonly found in the field and food handling establishments
- Implement a sound pest control program
- Periodic inspection of facilities with record-keeping procedures
- If pesticides are used, handling, application, storage, and disposal should comply with local registered approvals.

Water Resources

- Water used in production of fruits and vegetables can be source of pathogen contamination
 - Common pathogens associated with use of water in agricultural production:

- <i>Escherichia coli</i>	- <i>Salmonella</i> spp.
- <i>Vibrio cholerae</i>	- <i>Shigella</i> spp.
- <i>Cryptosporidium parvum</i>	- <i>Gardia lamblia</i>
- <i>Cyclospora cayetanensis</i>	- <i>Toxiplasm gondii</i>
- <i>Norwalk virus</i>	- <i>Hepatitis A virus</i>
- Above microorganisms are associated with gastrointestinal diseases that, in severe cases, can cause death.

Water Resources

Factors affecting severity of risk of contamination of produce with microorganisms present in water:

- Stage of development and type of crop
- Time between water application and harvest
- Water and product handling practices

Water Resources

Water destined for agricultural production can become contaminated with human or animal feces. To protect water sources:

- Keep animals and children out of the fields
- Provide properly constructed and maintained restrooms
- Properly develop wells and water systems

Irrigation Water Quality

If water used for irrigation becomes contaminated with microorganisms, it can spread the pathogens to the crops.

- Irrigation water should be tested regularly.
 - EPA standard for reclaimed water (treated effluent) used on fresh produce = <2.2 fecal coliforms/100 ml of water. This is considered free of pathogens for nonpotable agricultural purposes.
 - Univ of California researches concluded that for irrigation water, 1000 fecal coliforms in 100 ml of water was acceptable based on survival studies of several pathogens on produce.

Irrigation Water Quality

Recommendations for testing water sources:

- Municipal water: annually by local water authority
- Well water: biannually and treat the well if fecal coliforms are present
- Surface water: quarterly or 3 times during the growing season in some states (at planting, at peak use, and close to harvest).

If test results indicate presence of fecal coliforms, filter water or use settling ponds to reduce counts in surface water systems. If in wells, use chemical treatment.

Irrigation Method

- Use *drip irrigation* whenever possible.
- Microbial risks minimized in *overhead irrigation* by using potable water. If using surface water, apply in the morning to reduce drying time. Rapid drying and UV light will reduce survival of pathogens.
- When using surface water, do not apply *overhead irrigation* within one week of harvest.
- Maintain records

Prevent Contamination of Water Sources

- Identify the primary and secondary sources of water, being conscious of possible pathogenic contamination
- Identify sources of water shared with feed-lots, grass-lots, and dairy farms
- Take necessary measures to prevent access of animals to crop fields and water sources
- Be aware of wildlife vectors and treat water accordingly
- Identify if adjacent fields are using untreated animal manure as fertilizer.

Prevent Contamination of Water Sources

- Avoid manure storage near crop fields
- Identify rainfall pattern
- Maintain water storage tanks
- Conduct routine test for water quality (determine coliform/E.coli) and if presence of fecal waste indicated, treat water as appropriate.
- Implement water conservation practices

OVERALL SUMMARY:

- Agricultural land and land that has been used for activities other than agriculture can be contaminated with pathogens or toxic chemicals.
- As part of GAP, it is necessary to identify possible sources of microbial and chemical contamination associated with prior use of the land.
- Minimize the risk of microbial contamination by proper and thorough composting of manure, incorporating raw manure into soil prior to planting, and avoiding top-dressing of plants.

- Store manure as far away as possible from areas where crops are grown.
- Every time water (including uses in irrigation, chemical application, washing, packaging, cooling, and during transport) comes in contact with produce, the possibility of contamination with pathogens exists.
- The severity of the hazard resulting from poor quality water depends on the degree of contact between water and produce, type and amount of microorganisms in the water and their capacity to survive on the produce.

- Water destined for agricultural production can easily be contaminated with feces. It is important to keep children and animals out of the fields and to provide field workers with proper restrooms.
- Water sources should be tested regularly for presence of microorganisms. If water sources are contaminated, possible alleviation measures include disinfecting with chlorine or another disinfectant or filtration of the water source.
- Insects, rodents, and other pests can be sources of contamination. A sound pest control program should be implemented. If pesticides are to be used, their application, storage and disposal should comply with local registration approvals.

Capacity building seminar on GAP for developing APEC economies
Manila, Philippines, 19-21 September 2006

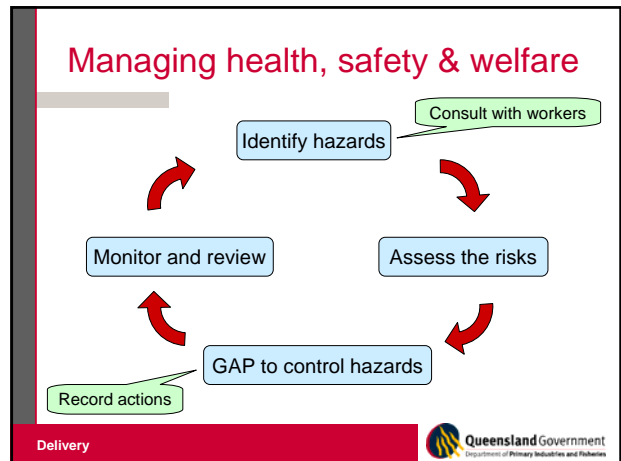
GAP: Worker health, safety and welfare

Scott Ledger


Department of Primary Industries and Fisheries
Queensland, Australia

 Queensland Government
Department of Primary Industries and Fisheries

Delivery




Identify hazards



Mechanical
exposed moving parts, working
at heights, heavy lifting




Chemical
pesticides, other
hazardous substances

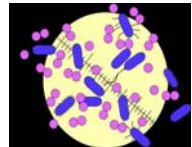
 Queensland Government
Department of Primary Industries and Fisheries

Delivery


Identify hazards



Electrical
overhead powerlines,
faulty equipment




Biological
germs in water or on toilets,
tables, equipment, containers,
produce and workers

 Queensland Government
Department of Primary Industries and Fisheries

Delivery

Identify hazards

- Radiation – sun and heat exposure
- Noise – loud equipment and tools
- Psychological – stressful conditions
- Welfare – exploitation of age, gender, race


 Queensland Government
Department of Primary Industries and Fisheries

Delivery

Assess the risks

Consequence of injury or illness	Frequency of exposure to hazard			
	Daily	Weekly	Monthly	Rarely
Die or disable	High	High	High	High
Time off work	High	High	Medium	Medium
First aid	High	Medium	Low	Low

Source: Farmsafe Australia Inc.

 Queensland Government
Department of Primary Industries and Fisheries

Delivery

Hazard analysis

Chemical hazards	Risk level	GAP to control hazard
Accidental ingestion of a pesticide	High	Chemicals are stored in a well lit, sound and secure structure, with only authorised people allowed access.
		Chemicals are stored in the original container with a legible label and according to label directions or instructions from a competent authority.

Delivery



GAP to control hazards



Eliminate or reduce the risk of the hazard occurring

Delivery



GAP to control hazards



Mechanical injury

- All vehicles, equipment and tools are adequately guarded and regularly maintained and inspected for potential hazards.
- Ladders are appropriate for the picking height and terrain.
- Safe manual handling is followed to avoid heavy lifting and twisting.

Delivery



GAP to control hazards



Hazardous chemicals

- Workers are trained in safe use of chemicals.
- Clean protective equipment is used and stored separate to chemicals.
- Chemicals are stored in a well lit, sound and secure structure with only authorised people allowed access.

Delivery



GAP to control hazards



Electrical hazards

- All electrical equipment, tools, cables and leads are adequately guarded and regularly maintained and inspected.
- Exposed electrical wires and damaged switches, power points, leads and tools are repaired or replaced.

Delivery



GAP to control hazards



Biological hazards

- Written instructions on personal hygiene practices are provided to workers or displayed in prominent locations.
- Toilets and hand washing facilities are readily available to workers and maintained in a hygienic condition.

Delivery



GAP to control hazards



Worker welfare

- Where provided, living quarters are suitable for human habitation and contain basic services and facilities.
- The minimum working age shall comply with country regulations. Where regulations are absent, workers shall be older than 15 years.

Delivery



GAP to control hazards



Training

- New workers are informed about the risks associated with health and safety when starting at the worksite.
- Workers have appropriate knowledge or are trained to a level appropriate to their area of responsibility.

Delivery



GAP to control hazards

Training register (one page per employee)

Employee Name: _____

Address: _____

Phone: _____ Fax: _____ Date of Birth: _____

Date Employed/Contracted: _____ Date Employment Ended: _____

Completed Module/Topic	Start Date	End Date
1		
2		
3		
4		
5		
6		
7		
8		

Category of Hazard	GAP	Control	Responsible Person/Role	Training Provided	Training Date	Assessment/Review Date	Training Outcome

Records of actions

- Records of GAP are kept for a minimum period of at least 2 years or for a longer period if required by government legislation.

Delivery



Monitor and review

Review of GAP

- All practices are reviewed at least once each year to ensure that they are done correctly and actions are taken to correct any deficiencies identified.
- A record is kept to show that all practices have been reviewed and any corrective actions taken are documented.
- Actions are taken to resolve complaints related to worker health, safety and welfare, and a record is kept of the complaint and actions taken.

Delivery



GAP self assessment checklist

Hazardous chemicals	Yes No NA	Actions required
Workers are trained in safe use of chemicals.		
Chemicals are stored in a well lit, sound and secure structure, with only authorised people allowed access.		

NA = Not applicable

Delivery



Important messages

- Identify hazards – mechanical, chemical, electrical, biological, radiation, noise, psychological, welfare
- Assess the risks – frequency of exposure to hazard + consequence of injury or illness
- Use hazard analysis to determine GAP
- Implement GAP to control hazards and keep records of actions
- Monitor and review GAP using self assessment checklist
- Involve workers in hazard analysis and review of GAP

Delivery



Capacity building seminar on GAP for developing APEC economies
Manila, Philippines, 19-21 September 2006

GAP Documents and records Traceability and recall

Scott Ledger
Department of Primary Industries and Fisheries
Queensland, Australia



Delivery

Purpose for documents and records

Communicate information to workers and customers

Provide evidence of what has been done

Personal Hygiene Instructions
All staff:

Wash your hands with soap and water and dry your hands on a single use disposable paper towel before handling food

After: Visiting the toilet
Handling animals
Handling waste food and rubbish

Cover cuts and sores with clean, waterproof dressings.

Inform the manager if you are suffering from gastric illness, hepatitis and other infectious diseases.


Do not smoke, eat food, or spit in produce handling areas.

Signature of employee: _____ Date: _____

Version 2 01/01/10

Training of workers

Enable traceability and recall of produce



Delivery

Effective documents and records

User friendly

Located where needed and easily accessible

Personal Hygiene Instructions
All staff:

Wash your hands with soap and water and dry your hands on a single use disposable paper towel before handling food

After: Visiting the toilet
Handling animals
Handling waste food and rubbish

Cover cuts and sores with clean, waterproof dressings.

Inform the manager if you are suffering from gastric illness, hepatitis and other infectious diseases.


Do not smoke, eat food, or spit in produce handling areas.

Signature of employee: _____ Date: _____

Version 2 01/01/10

Easy to understand


Up to date with current version identified



Delivery

Typical GAP documents

- Farm plan
- Personal hygiene instructions
- Cleaning and pest control plan
- Chemical inventory
- Spray record
- Fertiliser and soil additives record
- Harvesting and packing record
- Job responsibility and training record
- Risk assessment record
- Self assessment checklist




Delivery

Traceability and recall

Tracing produce back to the farm and forward to the customer if unsafe produce is detected or suspected


- Each separate production site is identified with a name or code
- Each batch of packed containers is clearly marked with an identification code
- A record is kept of production site, batch identification, date of supply and destination
- Records of farm operations are kept
- Instructions for recalling produce and investigating problems are developed



Delivery

Traceability trip


FREDDIE'S FRUITS



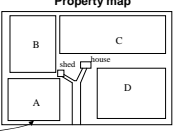
Harvesting and Packing Record

Batch	Date	Time	Harvester	Packer	Destination

GREAT GOOLIES




Property map



Spray diary

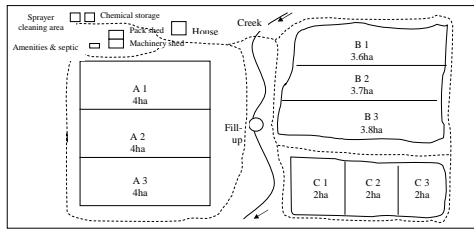
Field No.	Area	Product	Rate	Application Date	Operator



Delivery

1

GAP for traceability



- Each separate production site is identified by a name or code.
- The name or code is placed on the site and recorded on property map.
- The site name or code is recorded on all documents and records.

Delivery



GAP for traceability



- Packed containers are clearly marked with an identification to enable traceability to the farm or site where the produce is grown.

Delivery



GAP for traceability

Harvest and Packing Record

Business/Grower Name: *WY ME*

Crop/Variety	Harvest Date	Block ID	Packing Date	Batch Code	Amount packed	Destination / Consign. No.	Comments (eg. quality, temperature)
Goolies	12/7/00	C	12/7/00	CH19912	120 cartons	Freddies Fruits - C092345	First pick - big fruit
Goolies	14/7/00	A	14/7/00	AH19914	96 cartons	Freddies Fruits - C092346	First pick - big fruit, some goolie moth damage
Goolies	15/7/00	C	15/7/00	CH19915	105 cartons	Freddies Fruits - C092347 Lucky Phals - C092348	Second pick - light rubs on some
Goolies	16/7/00	A	17/7/00	AH19917	115 cartons	Freddies Fruits - C092349 Lucky Phals - C092350	Second pick - some goolie moth damage
Munchies	21/7/00	B	21/7/00	BO19921	86 cartons	Lucky Phals - C092351	First pick - excellent quality
Goolies	24/7/00	A	24/7/00	AH19924	96 cartons	Freddies Fruits - C092352	Strip pick - small to medium sizes
Munchies	26/7/00	B	26/7/00	BO19926	95 cartons	Lucky Phals - C092353	Strip pick - wind blemish. Inferred LP of excess damage - not at spec. Fruit still wanted.

- A record is kept of the production site, batch identification, date of supply, quantity of produce and destination for each consignment.

Delivery



GAP for recalling produce

- When produce is identified as being contaminated or potentially contaminated, the produce is isolated and distribution is prevented or if sold, the buyer is immediately notified
- The cause of any contamination is investigated and corrective actions are taken to prevent re-occurrence and a record is kept of the incident and actions taken.

Delivery



Important messages

Documents and records

- Documents and records communicate information, help train workers, provide evidence of what has been done and enable traceability and recall of produce.
- Effective documents and records are user friendly, easy to understand, relevant to the situation, readily accessible where needed and up to date with current version identified.

Delivery



Important messages

Traceability and recall

- For effective traceability, each production site and batch of packed containers is identified and records are kept of production site, farm operations, batch identification, and date of supply and destination of sold produce.
- Instructions for recalling produce and investigating problems are developed.

Delivery



GAP(EUREPGAP) INSPECTION: PROCEDURES

Sathianathan Menon
qa plus asia-pacific sdn. bhd.
Kuala Lumpur, MALAYSIA

Capacity Building Seminar on Good Agricultural Practices (GAP)
for Developing APEC Economies
Manila, Philippines
19-21 September 2006



Scope of Presentation

- Introduction to EUREPGAP Control Points
- How does EUREPGAP Work
- Control Points Criteria- Major Musts
- Inspection Procedures

EUREPGAP Protocol for Fresh Produce-Control Point Criteria -Fruits and Vegetables (Version 2.0 – Jan 04)

<p>Food Safety</p> <ul style="list-style-type: none"> Traceability Record Keeping & Internal Self-Inspection Harvesting Produce Handling Fertilizer Use Crop Protection 	<p>Environmental</p> <ul style="list-style-type: none"> Varieties & Rootstock Site History & Site Management Irrigation & Fertigation Waste & Pollution Management, Waste-Recycling & Re-use Environmental Issues 	<p>Social Responsibility</p> <ul style="list-style-type: none"> Worker Health, Safety & Welfare <p>Others</p> <ul style="list-style-type: none"> Complaint Form
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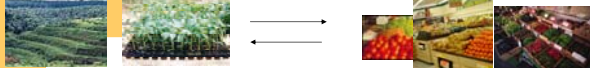
14 Chapters

Control Points & Compliance Criteria Fruits and Vegetables Version 2.0 – Jan 04

- 210 individual control points
- 47 Major Musts
- 98 Minor Musts
- 65 Recommended Control Points

How does EUREPGAP work?

- Producers are required to demonstrate compliance through the EUREPGAP self-assessment checklist and an annual audit by a licensed certification body
- Producers must be able to demonstrate compliance with
 - 100% of the applicable Major Control Points
 - 95% of the applicable Minor Control Points



Chapter 1: Traceability

1.1 EUREPGAP registered product traceable back to and trackable from the registered farm where it has been grown

Compliance Level: Major

Compliance Criteria:

- Documented traceability system in place
- Records
- Identification of inputs used during production
- Identification of source of these inputs
- Identification of finished product and its destination

Chapter 2 : Record Keeping & Internal Self Inspections

2.2

- Farmer to undertake minimum of one self-inspection per year
- Against EUREPGAP Standard

Compliance Level: **Major**

Compliance criteria: Internal self-inspection of all activities covered by EUREPGAP Standard- required at least once every 12 months



Chapter 2 : Record Keeping & Internal Self Inspections

2.3

Internal self-inspection

- Documented
- Recorded

Compliance level: **Major**

Compliance Criteria: EUREPGAP Checklist completed & documented



Chapter 2 : Record Keeping & Internal Self Inspections

2.3

Internal self-inspection

- Documented
- Recorded

Compliance level: **Major**

Compliance Criteria: EUREPGAP Checklist completed & documented



Chapter 2 : Record Keeping & Internal Self Inspections

2.4

Effective corrective actions taken as a result of internal self-inspection

Compliance level: **Major**

Compliance Criteria:

- Effective corrective actions documented
- Corrective actions implemented- Who, When



Chapter 3: Varieties & Rootstock

3.6 Genetically Modified Organisms

3.6.1

Planting of GMO to comply with all applicable Legislation in country of production

Compliance level: **Major**

Compliance criteria:

- Copy of legislation in country of production any comply
- Unless no GMO varieties are used



Chapter 4: Site History & Site Management

4.1 Site History

4.1.1

Risk assessment to be undertaken for new sites- suitability for food production: food safety, operator safety & environment

Compliance level: **Major**

Compliance criteria:

Documented risk assessment



Chapter 4: Site History & Site Management

4.2 Site Management

4.2.1

Establish recording system for each field

Compliance level: **Major**

Compliance criteria:

- Documented records
- Maintain record keeping system for all agronomic activities



Chapter 5: Soil & Substrate Management

5.5 Substrates

5.5.2

Record location of sterilization if Chemicals used to sterilize Substrates for re-use

Compliance level: **Major**

Compliance criteria:

- If on-farm sterilization name or reference of field
- If off-farm sterilization name & location of company



Chapter 6: Fertilizer Use

6.1 Advice on quantity and type of fertilizer

Technically responsible person to advise on quantity & type of fertilizer to use to demonstrate competence

Compliance level: **Minor**

Compliance criteria:

- Documentary evidence to be made available
- To demonstrate training & competence



Chapter 6: Fertilizer Use

6.2 Records of application

6.2.1

All application details of soil & foliar fertilizers including location reference to be recorded

Compliance level: **Minor**

Compliance criteria:

- Records of all fertilizer applications
- Location, application dates, type, rate of application, method of application, applying details of operator



Chapter 6: Fertilizer Use

6.4 Fertilizer storage

6.4.5

Dry storage area for inorganic fertilizer

Compliance level: **Minor**

Compliance criteria:

- Manager to demonstrate compliance



Chapter 6: Fertilizer Use

6.4 Fertilizer storage

6.4.6

Storage of inorganic fertilizers in appropriate manner that reduces Risk of contamination of water courses

Compliance level: **Minor**

Compliance criteria:

- Demonstrate compliance
- Adhere to local legislation requirement
- Consideration has been given to proximity to water courses



Chapter 6: Fertilizer Use

6.4 Fertilizer storage

6.4.7

Inorganic / Organic fertilizers stored separately from plant propagation Material

Compliance level: **Major**

Compliance criteria:

- Manager to demonstrate compliance
- Inventory records to clearly indicate storage area



Chapter 6: Fertilizer Use

6.5 Organic fertilizers

6.5.1

Human sewage sludge is not used on the farm

Compliance level: **Major**

Compliance criteria:

- Demonstrate compliance
- Organic fertilizers purchased must display no human sewage as component



Chapter 7: Irrigation / Fertigation

7.3 Quality of irrigation water

7.3.1

Untreated sewage water not used for irrigation/ fertigation

Compliance level: **Major**

Compliance criteria:

- Untreated sewage water should not be used



Chapter 8: Crop Protection

8.2 Choice of chemicals

8.2.1

CPP applied is appropriate for the target as recommended on product Label

Compliance level: **Major**

Compliance criteria:

- CPP are suitable to the crop
- Justified according to label instructions



Chapter 8: Crop Protection

8.2 Choice of chemicals

8.2.2

Farmers use CPP that are registered in the country of use and for the target crop (where such scheme exists)

Compliance level: **Major**

Compliance criteria:

- All CPP used are officially registered for use in the country



Chapter 8: Crop Protection

8.2 Choice of chemicals

8.2.5

Chemicals banned in EU not used on crops destined for export to EU


Compliance level: **Major**

Compliance criteria:

- No CPP banned in EU used
- Records for CPP applications




Chapter 8: Crop Protection



8.2 Choice of chemicals
8.2.6
 Choice of CPP made by advisers who must demonstrate competence
Compliance level: **Major**
Compliance criteria:


- CPP advise must be technically competent person
- Evidence by official qualifications



Chapter 8: Crop Protection

8.2 Choice of chemicals
8.2.7
 If choice of CPP made by farmer, competence and knowledge need to be demonstrated
Compliance level: **Major**
Compliance criteria:


- Technical competence must be demonstrated
- Technical documentation, product technical literature



Chapter 8: Crop Protection

8.3 Records of application
8.3.1
 All CPP applications to be recorded including crop name and variety
Compliance level: **Major**
Compliance criteria:


- CPP records



Chapter 8: Crop Protection

8.3 Records of application
8.3.2
 All CPP applications and location to be recorded
Compliance level: **Major**
Compliance criteria:


- CPP application records to specify location



Chapter 8: Crop Protection

8.3 Records of application
8.3.3
 All CPP applications recorded with dates
Compliance level: **Major**
Compliance criteria:


- Application records to specify exact dates



Chapter 8: Crop Protection

8.3 Records of application
8.3.4
 All CPP applications recorded including product trade name and active ingredient
Compliance level: **Major**
Compliance criteria:

- CPP application records specify trade name and active ingredient



Chapter 8: Crop Protection

8.3 Records of application

8.3.10

All CPP applications recorded including the pre-harvest interval

Compliance level: **Major**

Compliance criteria:

- Pre-harvest interval must be recorded for all CPP applications



Chapter 8: Crop Protection

8.4 Pre-harvest intervals

8.4.1

Registered pre-harvest intervals must be Observed

Compliance level: **Major**

Compliance criteria:

- Farmer must demonstrate relevant records



Chapter 8: Crop Protection

8.7 CPP Residue analysis

8.7.1

Farmer/ supplier able to provide current evidence of residue testing traceable to the farm

Compliance level: **Major**

Compliance criteria:

- Current documented records of annual CPP residue analysis results available



Chapter 8: Crop Protection

8.7 CPP Residue analysis

8.7.2

Farmer to be aware of MRL restrictions in country where the EUREPGAP registered product is intended to be traded

Compliance level: **Major**

Compliance criteria:

- A list showing current applicable MRLs



Chapter 8: Crop Protection

8.7 CPP Residue analysis

8.7.4

An action plan in place in the event MRL is exceeded

Compliance level: **Major**

Compliance criteria:

- Clear documented procedure on remedial steps and actions



Chapter 9: Harvesting



9.1 Hygiene

9.1.1

A hygiene risk analysis to be performed for the harvest and pre-farm gate transport process


Compliance level: **Major**

Compliance criteria:

- Documented and up-to date risk assessment covering hygiene aspects




Chapter 9: Harvesting




9.1 Hygiene
9.1.2
 A hygiene procedure to be implemented for the harvesting process
Compliance level: **Major**
Compliance criteria:

- Documented hygiene procedure has been implemented




Chapter 9: Harvesting




9.1 Hygiene
9.1.3
 Harvesting process hygiene procedure considers containers and tool handling
Compliance level: **Major**
Compliance criteria:

- Procedures are documented and implemented




Chapter 9: Harvesting




9.1 Hygiene
9.1.4
 Harvesting process hygiene procedure considers the handling of harvested and produce packed and handled directly in the field, orchard, or greenhouse
Compliance level: **Major**
Compliance criteria:

- Procedures are documented and implemented




Chapter 9: Harvesting




9.1 Hygiene
9.1.5
 Harvesting process hygiene procedure includes on farm produce transportation
Compliance level: **Major**
Compliance criteria:

- Maintenance and cleaning schedule of farm vehicles




Chapter 9: Harvesting



9.1 Hygiene
9.1.6
 Harvest workers have access to clean hand washing equipment in vicinity of work
Compliance level: **Major**
Compliance criteria:



- Demonstrate compliance



Chapter 10: Produce Handling

10.1 Hygiene -On farm packing hygiene
10.1.4
 Workers to receive basic instructions in hygiene before handling produce
Compliance level: **Major**
Compliance criteria:

- Training on personal hygiene
- Training records

Chapter 10: Produce Handling

10.2 Post harvest washing

10.2.1

Water used for final product washing is potable or declared suitable by the competent authorities

Compliance level: **Major**

Compliance:

- Results of water testing



Chapter 10: Produce Handling

10.2 Post harvest washing

10.2.2

If water is re-circulated for final product washing has this water been filtered and exposure levels to disinfectant routinely monitored

Compliance level: **Major**

Compliance criteria:

- Records



Chapter 10: Produce Handling

10.3 Post-harvest chemicals

10.3.1

All label instructions observed

Compliance level: **Major**

Compliance criteria:

- Clear procedures and documentation available



Chapter 10: Produce Handling

10.3 Post-harvest chemicals

10.3.2

All post harvest biocides, waxes and CPP used on produce are officially registered or permitted by appropriate government organizations

Compliance level: **Major**

Compliance criteria:

- Records



Chapter 10: Produce Handling

10.3 Post-harvest chemicals

10.3.3

Biocides, waxes and CPP banned in EU are used in produce destined for sale in EU

Compliance level: **Major**

Compliance criteria:

- Application records



Chapter 10: Produce Handling

10.3 Post-harvest chemicals

10.3.7

Have the post-harvest biocides, waxes and CPP applications been recorded including produce identity

Compliance level: **Major**

Compliance criteria:


- Documented
- Application records



Chapter 10: Produce Handling

10.3 Post-harvest chemicals
10.3.8
 Has location of biocides, waxes and CPP recorded
 Compliance level: **Major**
Compliance criteria:

- Documented records



Chapter 10: Produce Handling


10.3 Post-harvest chemicals
10.3.9
 Has application dates of post-harvest chemicals been recorded
 Compliance level: **Major**
Compliance criteria:

- Application records documented

Chapter 10: Produce Handling

10.3 Post-harvest chemicals
10.3.10
 Has the type of treatment for post harvest chemicals recorded
 Compliance level: **Major**
Compliance criteria:


- Type of treatment is documented



Chapter 10: Produce Handling

10.3 Post-harvest chemicals
10.3.11
 Has product name of biocides, waxes or CPP been recorded
 Compliance level: **Major**
Compliance criteria:


- Trade name and Active ingredient
- Application records



Chapter 10: Produce Handling

10.3 Post-harvest chemicals
10.3.12
 Has the product quantity of post harvest chemical application been recorded?
 Compliance level: **Major**
Compliance criteria:



- Application records



Chapter 11: Waste and Pollution Management, Recycling & Re-Use

11.1 Identification of waste & pollutants
11.1.1
 All possible waste products in all areas of farm business to be identified
 Compliance level: **Recommended**
Compliance criteria:

- All waste products catalogued and documented

Chapter 11: Waste and Pollution Management, Recycling & Re-Use

11.2 Waste & pollution action plan

11.2.1

A documented plan to reduce wastage and pollution and avoid land-fill or burning

Compliance level: **Recommended**

Compliance criteria:

- A comprehensive current documented plan that covers wastage reduction, pollution and waste recycling is available



Chapter 12: Worker Health, Safety & Welfare

12.4 Crop protection product handling

12.4.1

Workers who handle & apply CPP are trained

Compliance level : **Minor**

Compliance criteria:

- Training on use of chemicals
- Training records



Chapter 12: Worker Health, Safety & Welfare

12.5 Protective clothing

12.5.1

Workers including sub-contractors equipped with suitable protective clothing in accordance with label instructions

Compliance level: **Major**

Compliance criteria:

- Demonstrate availability of protective clothing



Chapter 12: Worker Health, Safety & Welfare

12.5 Protective clothing

12.5.4

Protective clothing & equipment stored separately from CPP

Compliance level: **Major**

Compliance criteria:

- Manger to demonstrate compliance



Chapter 14: Complaint Form

14.1.1

Complaint form available relating to Issues of compliance to EUREPGAP Standard

Compliance level: **Major**

Compliance criteria:

- Clearly identifiable document for complaints made available on farm including details



Chapter 14: Complaint Form

14.1.2

Complaints procedure to ensure that complaints are adequately recorded, studied, followed up and record of actions taken

Compliance level: **Major**

Compliance criteria:

- Documents of corrective action report



Thank You

For

Your Kind Attention



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PRODUCE FARM INVESTIGATIONS

Capacity Building Seminar on Good Agricultural Practices for Developing APEC Economies

September 19-21, 2006

Cecilia P. Gaston
Exponent, Inc., USA

Guide to Produce Farm Investigations

Reasons for a farm investigation:

- ❑ An outbreak and trace back investigation implicated the farm and its operations
- ❑ Follow-up to a positive produce sample, after all possible sources of contamination in the distribution chain have been checked

Guide to Produce Farm Investigations

Objectives:

- ❑ Minimize the potential for illness caused by produce in question from entering interstate commerce
- ❑ Document possible sources of microbial contamination that may have led to the produce-associated outbreak or positive sample
- ❑ Build a scientific base to assess relative microbial risk of on-farm practices
- ❑ Refine Agency policy and guidance aimed at reducing foodborne illness related to fresh produce

Guide to Produce Farm Investigations

The **purpose** of a farm investigation is to gather information and observe and document practices that may have led to the pathogen specific contamination of produce.

Guide to Produce Farm Investigations

Legal basis:

“ Establishments engaged solely in harvesting, storage, or distribution of one or more raw agricultural commodities, as defined in section 201(r) of the Act... are not subject to 21 CFR Part 110 (Current GMPs for Food)”.

FDA states that “raw agricultural commodities will continue to be regulated simply under the adulteration provision of the Act (Section 402) and not under the GMP regulations.”

Guide to Produce Farm Investigations

Guidance documents useful in assessing whether raw agricultural products are handled under conditions that may adulterate the food:

- ❑ Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables (GAP Guide)
- ❑ Farm Investigation Questionnaire

Guide to Produce Farm Investigations

Investigation Team:

- ❑ Multi-disciplinary team, led by FDA ORA
 - Food inspection background
 - epidemiologist
 - microbiologist
 - water systems/sanitation expert
 - possibly an agronomist
- ❑ Members from other agencies like EPA, USDA, CDC, State or local agencies

Guide to Produce Farm Investigations

Conducting the investigation:

- ❑ Focus investigation on the time period and conditions that existed during the growing, harvesting, packing, and cooling of the produce implicated in the outbreak
- ❑ Use expertise to investigate and evaluate sources of microbial contamination based on the pathogen of concern
- ❑ Consider any cultural considerations and protocols that should be followed
- ❑ Use investigative skills, GAP Guide, and Farm Investigation Questionnaire as foundation for the investigation

Guide to Produce Farm Investigations

Factors/situations to be considered:

- ❑ Diagram the farm layout to assist in identifying and assessing contamination sources
- ❑ Determine water quality and sources, review records, document disinfectant usage and levels, and any other tests conducted
- ❑ Obtain information on manure source, treatment, storage, and timing of application
- ❑ Examine whether run-off from manure storage and treatment areas could contaminate the crop
- ❑ Document number and type of animals in adjacent areas, distance from the crop or water sources

Guide to Produce Farm Investigations

Worker health and safety

- Identify steps from harvesting to transport where workers handle the produce or come in contact with water that also come in contact with produce
- Observe and record the practice and frequency of hand washing in field and packing facility
- Determine if children accompany workers in the field and whether diapers are used, and method of disposal
- Interview workers to determine if any that had contact with produce were ill during the time in question
- Determine water source for hand washing and whether hand rinse water is collected or allowed to drain in the vicinity of the packing operation

Guide to Produce Farm Investigations

Sanitary facilities

- Record number, availability and location of sanitary facilities in relation to the number of workers and whether workers are using the facilities
- Inspect conditions of restrooms and schedule of cleaning
- Determine the cleaning and disposal location of sanitary waste
- View and document the condition of the waste disposal site if on-location, and maintenance records

Guide to Produce Farm Investigations

Field sanitation

- Examine condition and use of harvest tools, containers such as sacks and bins, crates, pallets, and farm machinery
- Examine tools and equipment for evidence of animal fecal material and soil accumulation
- Record sanitation practices for cleaning equipment to minimize potential for contamination
- Determine where and how harvest tools and containers are stored when not in use

Guide to Produce Farm Investigations

❑ Processing/packing

- Verify cleaning and sanitation schedules and the pest control program
- Look for items or areas that would attract animals, such as tall grassy areas, standing water, trash accumulation, etc.
- Record stock rotational practices
- Determine how long produce remains un-refrigerated in the packing facility and the time interval before it is cooled

Guide to Produce Farm Investigations

❑ Cooling and Transport

- Record source of water used and sanitary conditions in the manufacture, transport, and storage of the ice
- Identify potential sources of contamination
- Record conditions of product storage, including floors and pallets
- Record sanitation conditions such as dirt/debris on vehicle, prior load hauled, type and frequency of cleaning and sanitizers used
- Determine the time from harvest to packing and next point in the distribution chain.

Guide to Produce Farm Investigations

❑ On-farm traceability

- Document the system and coding that allows the product to be traced from the field to packing facility through loading and distribution.
- Basic information should include crop, field identification, harvest date, harvest crew, lot identification or product code, shipment date, customers.

Guide to Produce Farm Investigations

❑ Documentation

- Obtain and review records for the time period when the implicated produce was planted, harvested, packed, and cooled.
- Obtain copies of all documents that support investigational observations and sources of contamination relating to the pathogen involved in the foodborne outbreak.

Guide to Produce Farm Investigations

❑ Investigation close-out

- Discuss all observations, including those that apply to Good Agricultural Practices.
- Emphasize that GAPs are only guidance, not regulations.
- Explain how observations relate to possible microbial contamination of the produce and potential illness.


Farm Investigation Questionnaire

FDA Form 3623 available at

<http://www.fda.gov/opacom/morechoices/fdaforms/ora.html>


This questionnaire has been developed by CFSAN and ORA for use on investigations of farms implicated in outbreaks or farms that grew produce that was found positive for pathogens by FDA testing.

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GAP Training Extension Programs: Designed for Farmers - Effective Implementation of Good Agricultural Practice

Khoo Gek Hoon
Head/ Quality Systems Branch
Food Supply and Technology Department



**Ensuring a resilient supply of safe food,
Safeguarding the health of animals and plants &
Facilitating agri-trade for Singapore.**

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Scope of Presentation

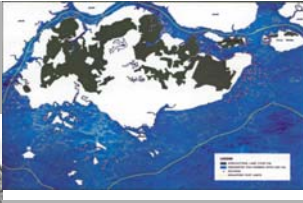

- ✦ **GAP Implementation in Singapore's Farms**
 - Development of Agriculture and Vegetable Farming Sector
 - Challenges in Implementing GAP-VF Certification Scheme
- ✦ **GAP Implementation in Indonesia's Farms**
 - Riau - Singapore Vegetable Project :Transferring Vegetable Farming Technology and GAP knowledge

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Development of Agriculture in Singapore

1960s:

- 20,000 farms on >14,000 ha of land
- subsistence farming

- open cultivation
- relied heavily on manual labour
- Extension service by PPD - e.g. distribution of chemical pesticides

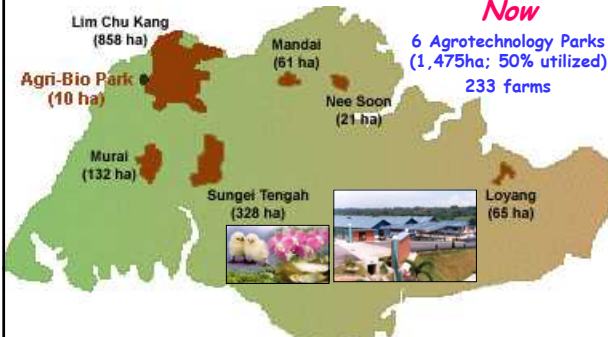
GAP implementation in Singapore's farms

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Agriculture Land

Now


6 Agrotechnology Parks (1,475ha; 50% utilized) 233 farms



Lim Chu Kang (858 ha)
Mandai (61 ha)
Nee Soon (21 ha)
Loyang (65 ha)
Sungei Tengah (328 ha)
Murai (132 ha)
Agri-Bio Park (10 ha)

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Agricultural Activities



- Complementary mix of agriculture activities
- Modern intensive farming methods
- Farm produces (< 5% TC)

	 poultry Farms	 Fish Farms	 Vegetable Farms	 Ornamental & Ornamental Plant Farms
Farm land (ha)	72	45	118	296
Farm No.	8	11 (63*)	61 (3)	70
Production	1,635 ton	7,579 ton	17,192 ton	-
	378.5 m.pcs eggs (*ornamental fish S\$87m exp)			(S\$57m exp.)

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Modern Intensive Farming Methods



Multi-tier layerhouse
Machines for land preparation & Composting
Automated Sprinkler system for irrigation

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Vegetable Farming Sector


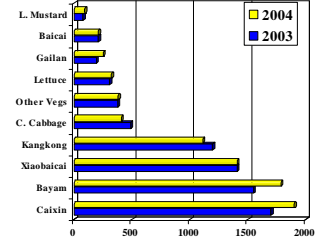


- 61 Vegetable farms, 106ha
- Intensive Cultivation (Ave. 2ha, 10 crops)
- Largely Soil Cultivation
- Protected Cultivation


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Vegetable Farming Activities

- Mostly leafy vegetables (48%) and beansprouts (52%); 17,192 ton (US\$9.4m)

Vegetable Type	2003	2004
L. Mustard	~100	~100
Baicai	~100	~100
Gailan	~100	~100
Lettuce	~100	~100
Other Vegg	~100	~100
C. Cabbage	~100	~100
Kangkong	~100	~100
Xiaobaical	~100	~100
Bayam	~100	~100
Caixin	~100	~100



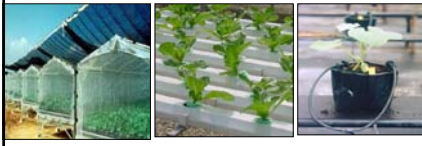
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Leafy Vegetable Farming Methods



Soil Cultivation

- Land preparation for growing beds
- Direct seed sowing/transplanting
- Thinning/weeding



Hydroponics

- Water culture (DFT, NFT, Aeroponics)
- Substrate culture - Drip

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Good Agricultural Practices


- ❖ Thro' AVA's R&D programs (HB, PHD) and free extension services i.e. farm visits (HB)
- ❖ Technology transfer for production of safe & quality vegetables; introduce concept and principles of GAP
- ❖ Areas of GAP
 - Protected cultivation
 - IPM & Safe pesticide use
 - Soil & Nutrient management
 - Harvesting & Postharvest handling practices



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Protected Cultivation

- Introduced to farmers in late 1980s
- Netted & PVC roof growing structures - modular
- Allow all-in-all out system
 - As a 1st line of defense against DBM (diamond-back moth, *Plutella xylostella*)
 - Effective barrier to keep pests out
 - Less pesticides need to be used
 - Protecting vegetables from rain damage
 - Less mechanical injury
 - Better soil moisture control reduces incidence of diseases eg. *Rhizoctonia*
 - Less fertilizers need to be applied



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IPM & Safe Pesticide Use

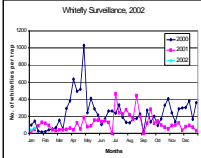

- Crop rotation
 - Brassicas with non-brassicas
- Sanitation
 - Removal of diseased plants
- Pheromone traps (DBM)
- Regular pest surveillance programs & system (Plant Health Centre)
- Training course on safe pesticide use - Registered Pesticide Operator



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IPM & Safe Pesticide Use

- ❑ **Distribution of technical information to growers**
 - o Monthly on-farm pest monitoring report
 - o Quarterly Plant Bulletin (technology, pest issues, R&D results, events)
 - o Leaflets on soil and nutrient management, pest management, pesticide use

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Soil & Nutrient Management

- ❑ **Fertiliser application: chicken manure and inorganic fertiliser**
 - o High salinity & phosphorus
 - o R&D on effective fertilizing regime
- ❑ **Use of compost**
 - o Soil conditioning
 - o Transfer effective on-farm composting technology





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Harvesting and Postharvest Handling

- ❑ **Bulk or retail pack**
- ❑ **Measures to minimize contaminations**
 - o rapid harvesting under shade using clean receptacle and methods
 - o hygienic practice during trimming and grading of vegetables, SOPs to clean and maintain packing/storage facilities



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GAP-VF Certification Scheme



GOOD AGRICULTURAL PRACTICE FOR VEGETABLE FARMING (GAP-VF) CERTIFICATION SCHEME



Components of GAP-VF

1. Farm location
2. Farm structure
3. Farm environment (soil/ water)
4. Farm maintenance (hygiene and cleanliness)
5. Farming practices/ methods/techniques (pesticides and fertilizer applications, pest and disease management, harvesting & post-harvest handling)
6. Farm management (farm records, SOPs, traceability, staff training)



FairPrice gives GAP-VF Scheme the thumbs-up




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Challenges in Implementing GAP-VF

2 yrs in promoting and implementing GAP-VF Certification

- ❖ Convincing end users (growers) to apply to Scheme
- ❖ Credible certification system
- ❖ Market's recognition - retailers & consumers



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Convincing Growers

- ❖ *Resistance to change*
- ❖ *Non-visual values*
- ❖ *Misconceptions (difficult and high cost of implementation, no premium, immediate profits)*




Wait, follow, retreat?

- ▶ Affordable Certification Fees
- ▶ Effective Extension Service

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Effective Farm Extension Service

More Challenges....



- ❖ *Confusion of GAP-VF system*
- ❖ *Poor documentation*
- ❖ *Lack of motivation/ Sustainable interest*




- ✓ Phase in implementation of GAP-VF standard (2 yrs)
- ✓ Briefings of GAP co-ordinator & farm personnel in local language
- ✓ Outreach materials (checklist, simplified documentation forms, local language, newsletter)
- ✓ One-to-one farm extension

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Effective Farm Extension Service

QM & record forms (seeds, fertilizers, pesticides, harvest, sales etc)

Production Flowchart
生产过程图

BED PREPARATION
栽培床的预备

↓

SEED SOWING
(Direct/ Transplanting)
播种/ 移植

↓

THINNING
疏苗

↓

FERTILISER/ Pesticide
APPLICATION
施肥/ 农药

↓

HARVESTING
采收


Production Flow/
process steps

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Credible Certification System

Still ...

- ❖ *Inconsistency in implemented GAP-VF standard*
- ❖ *Poor co-ordination between various working parties (auditors, extension officers, administrators)*




"Okay your father managed to get a mouse. Now how do we use it?"

- ✓ Briefing of on the GAP-VF standard & regulations of certification system, photos & illustrations, implementing guide
- ✓ Train-e-trainers sessions
- ✓ Produce checklists, report forms & develop work procedures
- ✓ Close discussion & clarifications

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GAP Implementation in Indonesia

The Riau – Singapore Vegetable Project (March 2001 – May 2005)



- ❖ G-to-G bilateral collaboration with Riau Province to diversify Singapore's sources for safe and quality fresh produce supply
- ❖ Funded by EDB, Singapore; Co-funded by Riau government and land given to Riau citizens (Pekanbaru)
- ❖ Technically supported by AVA

GAP implementation in Indonesia's farms

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Project Scope

- ❖ Technology Transfer (in Production)
- ❖ Processing Centre
- ❖ Logistics
- ❖ Market Development
- ❖ Commercialization

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Technology Transfer in Veg. Production

Two-Phase Approach

- ❑ Demonstration farms by AVA (Jul 2001)
- ❑ Commercial farms by DTPR (Dinas Tanaman Pangan Riau, 2003)




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Demonstration Farms by AVA

- Demo Farms (Phase I 0.4 ha) Simpang Tiga
- Demo Farms (Phase II 0.6 ha) Balai Benih Induk

Intensive training on Vegetable Farming Technologies & GAP components :



- ✓ Protected Cultivation - construction & farming practices
- ✓ Integrated Pest Management
- ✓ Fertilizer Management
- ✓ Good Harvesting Techniques

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Demonstration Farms by AVA

Parties Involved

- Experienced Singapore's farmer
(Construction of netted structure and irrigation system)
- AVA's extension officers (Good farming practices, GAP)

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Demonstration Farms by AVA



Introduce Insect trap - reduce pest population & IPM concept to farmers; Pest ID



Application of NPK according to fertilizing programme



Provide talks to farmers on vegetables cultural practices, safe pesticide use, food safety





Good harvesting Techniques



Field advisory services to farmers on proper method of harvesting

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Commercial Farms by DTPR

Phase I 10 ha Commercial farms at

- Balai Benih Induk
- Sekolah Pertanian Menengah Atas (SPMA)
- 50 farmers (0.2 ha, Contract farming managed by a group leader - Handholding programme)

Phase II 100 ha Commercial farms in Riau




Continue Technology Transfer & On-farm Briefing/ Training on Cultural Practices to DTPR officers and farmers by AVA extension officers

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Supplemented Programmes

Upgrading Plan of Action
(May 2004 - May 2005)

- Management Handholding Programme
- Selected keen farmers
- Upgrading training in Good Crop Management (Pest & disease management, postharvest and quality control and marketing skill)



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..More Training in Veg. Processing Centre

Established 2 PCs in Marpoyan, 2003

- Post-harvest handling (SSOP, GMP):
6 training sessions - quality, labeling, packing, sanitation, personal hygiene






• Trimming and grading of vegetables
• Traceability



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GAP Training Extension Programmes

- ❖ Numerous on-farm trainings/ briefings / trouble-shooting provided intensively by AVA extension officers over the 5 yrs:
(6 officers, weekly for 2 yrs, monthly for 5 yrs)
- ❖ 5 -10 farmers; up to 50 farmers
- ❖ DTPR officers & field co-ordinators (Indonesian graduates & students) trained by AVA officers
- ❖ Intensive training for the farmers' community incorporating training in food safety, marketing skill - small holding, subsistence farming
- ❖ Local language, pictorial and illustration guide (different mindset and culture)



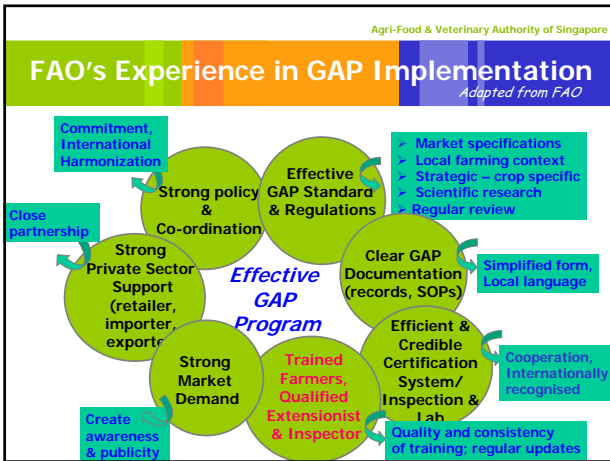
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Outcomes of Project

- ❖ Alternate source of safe and quality vegetable supply for Singapore's consumers
- ❖ Regular supply (8 - 9 tons, biweekly) 'Value Fresh' (Singapore's largest chain supermarket, NTUC Fairprice)
- ❖ Riau farms adopted some of Singapore's GAP-VF components, good farming practices







Thank You

Acknowledgement:

- Horticulture Branch – Riau-Singapore Vegetable Project, Extension & R&D on GAP-VF
- Pest Management Unit, Plant Health Centre
- Photo credits for IPM