

## Horticulture Development in Thailand

— Present Situation and Problems on the Vegetable Production and Marketing —

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### タイ国の園芸開発

— 野菜生産と流通の現状と課題 —

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#### Introduction

Agriculture is an important part of Thai economy and society. Thailand has a population of 60 million people. About 60% of total labor force is in agricultural field and contributes 11.4% of the Gross Domestic Production(GDP). Also, the agriculture remains the major source of foreign exchanges earning.

However, the government saw that growth rate of agriculture has been reduced continually.

Some crop production has problems such as rice, cassava, sugar, coffee, pepper etc. that face the cost of production and competitiveness for exportation. In response to this changes, the government role on agricultural development needs to be adjusted by encouraging production restructure and system adjusting to alternative activities such as horticulture, livestock, fishery etc.

Among them, the horticulture sector plays an increasing role. Recently, the vegetable demand has been increasing every year due to population increasing and exportation. Also, people's behavior is changing to eat vegetable in order to keep healthy.

The agriculture is mainly in hand of small scale farmers (25.9 Rai: 1Rai=0.16ha). The vegetable production is characterized by planting, harvesting, capital investment, farm labor and marketing factors.

The main purpose of the research is concerning the government policies and developmental approach regarding the improvement of the

vegetable production and marketing in Thailand.

#### 1. Trend of vegetable production and marketing

Thailand has an advantage of physical features to grow vegetable more suitable. Almost vegetable production is for domestic consumption, about 2-3 million tons or 90-95% of all. Thai people consume vegetable about 40-50Kg/head/year.

In year 1995/96, Thailand had about 3.1 million Rais and 4.8 million tons of vegetable production area and yield respectively. Growth rate of vegetable growing area and yield in the last 5 years were about 12.54% and 11.56% respectively (Table 1).

Thailand has exported both fresh and preserved vegetable every year. There are many kinds of preservation such as frozen, soaking (in salt or sirup), drying etc. In the last 5 years (1992-1996), vegetable exportation was increased in both quantity and value. It was about 266, 979 tons

**Table 1. Growing area and yield of vegetable production in Thailand year 1991/92 - 1995/96**

| Year             | Growing area |          | Yield     |          |
|------------------|--------------|----------|-----------|----------|
|                  | Rais         | growth % | tons      | growth % |
| 1991/92          | 2,612,242    | -        | 3,551,726 | -        |
| 1992/93          | 2,139,493    | - 18.10  | 3,174,131 | - 10.63  |
| 1993/94          | 1,701,041    | - 20.49  | 2,598,865 | - 18.12  |
| 1994/95          | 1,579,151    | - 7.17   | 3,303,029 | +16.59   |
| 1995/96          | 3,093,858    | + 95.92  | 4,798,978 | +58.38   |
| Average growth % | -            | + 12.54  | -         | + 11.56  |

Source: Dep. of Agricultural Extension

**Table 2. Quantity and value of vegetable exportation 1992-96**

| Year             | Quantity |          | Value        |          |
|------------------|----------|----------|--------------|----------|
|                  | tons     | growth % | Million Baht | growth % |
| 1992             | 266,979  | -        | 5,544.9      | -        |
| 1993             | 247,379  | - 7.34   | 5,507.0      | - 0.68   |
| 1994             | 303,721  | - 22.76  | 6,210.1      | + 12.77  |
| 1995             | 308,687  | + 1.64   | 7,234.3      | + 16.49  |
| 1996             | 335,601  | + 8.72   | 8,264.4      | + 14.24  |
| Average growth % | -        | + 6.45   | -            | + 10.71  |

Source: Dep. of Agricultural Extension

and 5,544.9 million Baht in 1992. Then, it increased to 335, 601 tons, 8,264.4 million Baht in 1996. Growth rate of exportation quantity and value were 6.45% and 10.71% respectively (Table 2). In year 1996, Thailand exported onion, califlower, chilli, callot, lady's finger, baby corn and asparagus in fresh basis, green pea and yard long bean in frozen basis, and baby corn, sweetcorn, whole peeled tomato, leaf mustard, mushroom and ginger in a can.

In the last 7 years, quantity and value of vegetable importation was increased with 34.33% and 32.99% growth rate respectively. It was about 4,035 tons, 200million Baht in 1988, and increased to 19,977 tons, 844 million Baht in 1994. Majorities of imported vegetables were fresh carrot and dried vegetables such as mushroom, bambooshoot, grand pea, etc.

Thailand has grown more than 70 varieties of vegetable, and 30-40 varieties are wide spread grown according to consumption characteristics and seasons. The production is almost abundant through the year. However, it is most excessive in winter season (December-February), especially the vegetable which is consumed leaf and stem. As for rainy and summer season, vegetable become decreasing due to rotting of extreme water holding and high temperature. Not only that, insect frequently comes to attack vegetable.

Vegetable production is distributed all over the country. But varieties of vegetable growing is different on physical features of each location (Fig. 1). For example:

Central and Western region such as Nonthaburi, Pathum Thani, Bangkok, Nakhon Pathom,

Ratchaburi, Kanchanaburi, Saraburi and Prachuap Khiri Khan grow chinese kale, yard long bean, bitter gourd, cucumber, pak choi, radish, baby corn, lady's finger and asparagus.

Northern region such as Chiang Mai, Chiang Rai, Lamphun, Lampang, Pechaboon and Tak grow garden bean, cabbage, lettuce, tomato, onion, garlic, shallot and potato etc. and also grow some varieties of temperature vegetable such as carrot, radish, spring garlic etc.

Northeast region such as Nong Khai, Sakon Nakhon, Nakhon Phanom, Buri Ram, Nakhon Ratchasima, Udon Thani and Khon Kaen grow tomato, chill, baby corn and water melon etc.

As for variations of vegetable price, it is decreased during winter-summer season (January-March) and rainy season (August-September) due to exceeding of the production. And it is usually increased in the end of rainy season to beginning of winter season (September to December).

## 2. Problems of the vegetable production and marketing

The government policy in agricultural development has been set up in the 5 year National Economic and Social Development Plan. The policy includes research to produce technologies for vegetable production, marketing, extension and services to the farmers. For the development, government organization under the Ministry of Agriculture and Cooperatives (MOAC), Department of Agricultural Extension (DOAE) has review the development proceeding in 7th Plan (1992-1996). The problems of the vegetable production and the situation are as follow:

### 1) Production problems

① High performance breed is not enough, it must import breedstock of vegetable from outside, so that the production cost is high. ② It is over using of chemicals in vegetable production that cause toxins contamination and high cost. ③ Some technologies of production is unappropriate to farmers, so that, productivity and quality are low and unstable. ④ Limitation of capital investment for input.

### 2) Marketing problems

① Farmers are not join to proceed marketing together. ② Low technology of post harvest,

packaging, keeping and transportation. ③ No unity of vegetable standarization. ④ Low efficiency of marketing, so that, consumer's price is high, and farmer's price is low. ⑤ Lack of central market that has facilities for vegetable keeping and grading. ⑥ Problem of transportation and contamination on vegegable exportation. ⑦ Cominucation of vegetable information is slow and not clear.

### 3. Policy for vegetable development for the 8th Plan (1997-2001)

Subject to the 7th Plan, DOAE proceeded the project of increasing the vegetable quantity and quality. In the 8th Plan, government estimates total vegetable demand of domestic and exportation. The vegetable consumption per head is about 40kg/year during the 8th Plan. The trend of vegetable consumption will be growth at 1.04% due to increasing of population. And enchancement of vegetable product exportation will be at 10.0% / year (Table 3).

**Table 3. Estimate demand of vegetable in 8th Plan million tons**

| Year          | Domestic consumption | Exportation | Sum   |
|---------------|----------------------|-------------|-------|
| 1997          | 2.451                | 1.195       | 3.646 |
| 1998          | 2.477                | 1.314       | 3.791 |
| 1999          | 2.502                | 1.445       | 3.948 |
| 2000          | 2.528                | 1.590       | 4.118 |
| 2001          | 2.555                | 1.750       | 4.305 |
| Growth rate % | 1.04                 | 10.00       | 4.24  |

Source: Ministry of Agriculture and Cooperatives

For tha goal of vagetable production, the 8th Plan enchances to extend the production area and encourages famers to grow more times in a year. The growing area is 2.6 million Rais (2.0% growth rate) with 1,655kg/Rai of productivity (2.14% growth rate), and total yield is 4,295 million tons (4.19% growth rate) (Table 4).

According to the DOAE development plan, the project outline of the vegetable production research, extension and services are as follow:

#### 1) Increase productivities and decrease production cost

**Table 4. Expect area productivity and yield of vegetable in 8th Plan**

| Year          | Growing area million Rai | Productiuitiy kg/Rai | Yield million tons |
|---------------|--------------------------|----------------------|--------------------|
| 1997          | 2.397                    | 2,520                | 3.643              |
| 1998          | 2.445                    | 1,550                | 3.790              |
| 1999          | 2.494                    | 1,580                | 3.940              |
| 2000          | 2.544                    | 1,615                | 4.109              |
| 2001          | 2.595                    | 1,655                | 4.295              |
| Growth rate % | 2.00                     | 2.14                 | 4.19               |

Source: Ministry of Aguriculture and cooperatives

① Promote suitabule breed for growing area. ② Promote good breed for increasing productivity. ③ Transfer technology of production and post harvest of vegetable. ④ Support more input especially for fertilizer and breedstock. ⑤ Support low interest loan to farmer. ⑥ Provide water supply.

#### 2) Research and development

① Research for vegetable breed and breeding improvement to decrease breed importation. ② Study on every process of production, especially on technology of post harvest, packaging, transportation. ③ Encourage private sector to study on vegetable breed and also breed of F1 hybrid for trading both inside and outside the country.

#### 3) Price stabilizing

① Encourage establishing of farmer fund for market proceeding. ② Promote trading in advance.

#### 4) Product standardizing

① Unite vegetable standards to be the same.

#### 5) Quality improvement

① Reduce chemical using in pest control by using integrated method. ② Research for integrated pest management. ③ Advise to control chemical using for pest management in vegetable production.

#### 6) Domestic marketing promotion

① Encourage establishing a center for agricultural product collecting by subsidize necessities such as chilling room, grading machine, packaging machine, etc. ② Encourage establishing a central market for vagetable trading to each production area. ③ Promote to advise for product grading to

vegetable trading. ④ Encourage farmer to proceed marketing by group practice. ⑤ Improve communication system to be up date.

#### 7) Enhance agricultural industry

① Encourage farmer to proceed vegetable production in contract farming directly to private company who process vegetable. ② Promote simple processing to farmer or farmer group in order to add value of product. ③ Promote investment of vegetable processing to private company for exportation.

#### 8) Promote and conserve varieties of native vegetable

#### Conclusion

In Thailand, vegetable is useful food that enriching of both vitamins and minerals, containing low calory and not so expensive. The trend of vegetable demand is growing by increasing population and people's awareness. The vegetable production plays an important role in initiation of labor employment and family industry.

In the 8th Plan, the government promotes to enhance both quality and value of vegetable for domestic consumption and exportation. It is expected to increase about 5% of quantity and 10% of value of exportation.

For the above goal, DOAE is continuing and implementing such as activities: restructure of vegetable production and marketing, toxin free vegetable production, varieties improvement and development, etc.

As for vegetable production for domestic consumption must concern to promote lacking area. Toxin free vegetable is becoming required by consumer according to health concern for both the domestic and the exportation.

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#### 要 旨

タイ国の農業開発では、これまでの穀物増産政策から、各地域に適した作目・畜目の選択的拡大を図り、食生活の多様化への対応と農産物輸出の増大を強調している。

本研究は、近年需要が増加している園芸部門、特に、野菜生産と流通の現状を分析し、第8次国家経済社会開発計画（1997-2001年）における開発施策や研究・普及等の課題について考察を行った。

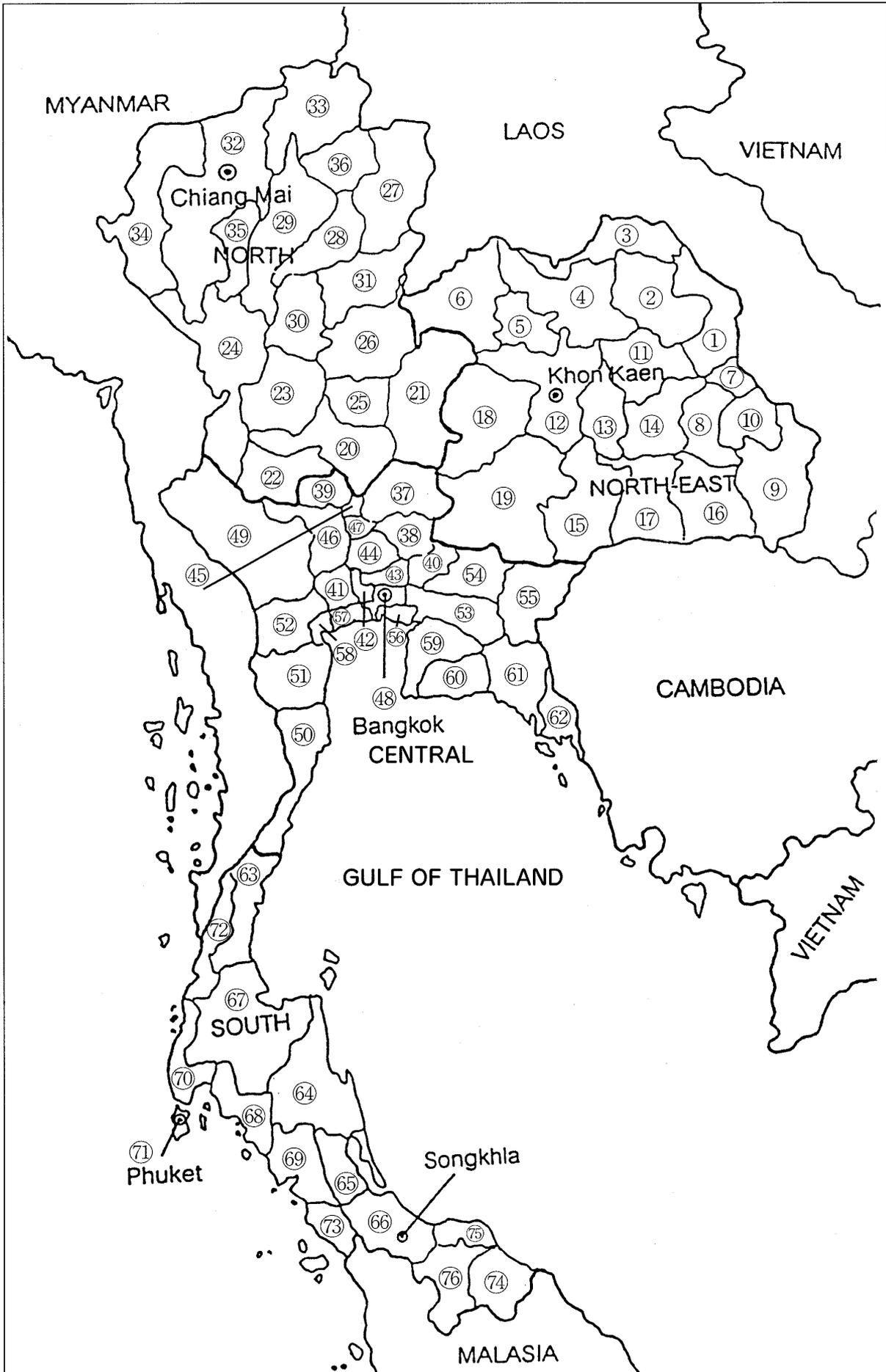


Fig. 1. Map of Thailand

**List of provinces and regions (Fig. 1)****North-Eastern Region**

1. Nakhon Phanom
2. Sakon Nakhon
3. Nong Khai
4. Udon Thani
5. Nong Bua Lam Phu
6. Loei
7. Mukdahan
8. Yasothon
9. Ubon Ratchathani
10. Amnat Charoen
11. Kalasin
12. Khon Kaen
13. Maha Sarakham
14. Roi Et
15. Buri Ram
16. Si Sa Ket
17. Surin
18. Chaiyaphum
19. Nakhon Ratchasima

**Northern Region**

20. Nakhon Sawan
21. Phetchabun
22. Uthai Thani
23. Kamphaeng Phet
24. Tak
25. Phichit
26. Phitsanulok
27. Nan
28. Phrae
29. Lampang
30. Sukhothai
31. Uttaradit
32. Chiang Mai
33. Chiang Rai
34. Mae Hong Son
35. Lamphun
36. Phayao

**Southern Region**

63. Chumphon
64. Nakhon Si Thammarat
65. Phatthalung
66. Songkhla
67. Surat Thani
68. Krabi
70. Phangnga
71. Phuket
72. Ranong
73. Satun
74. Narathiwat
75. Pattani

**Central Plain Region**

37. Lop Buri
38. Saraburi
39. Chai Nat
40. Nakhon Nayok
41. Nakhon Pathom
42. Nonthaburi
43. Pathum Thani
44. Ayutthaya
45. Sing Buri
46. Suphan Buri
47. Ang Thong
48. Bangkok Metropolis
49. Kanchanaburi
50. Prachuap Khiri Khan
51. Phetchaburi
52. Ratchaburi
53. Chachoengsao
54. Prachin Buri
55. Sa Kaeo
56. Samut Prakan
57. Samut Sakhon
58. Samut Songkhram
59. Chon Buri
60. Rayong
61. Chanthaburi
62. Trat