

## CHAPTER 1

### INTRODUCTION

Peri-urban agricultural systems contribute significantly to food supply for urban/city consumption. Production of peri-urban vegetables is dynamic, responding to urbanization, socio-economic changes in the community, and to governmental policy on agricultural transformation in lowland ecosystem. Majority of farmers in the peri-urban area are small-scale farm holders who either work as full-time or part-time farmers. The system has closed interaction between urban consumers and rural farming enterprises.

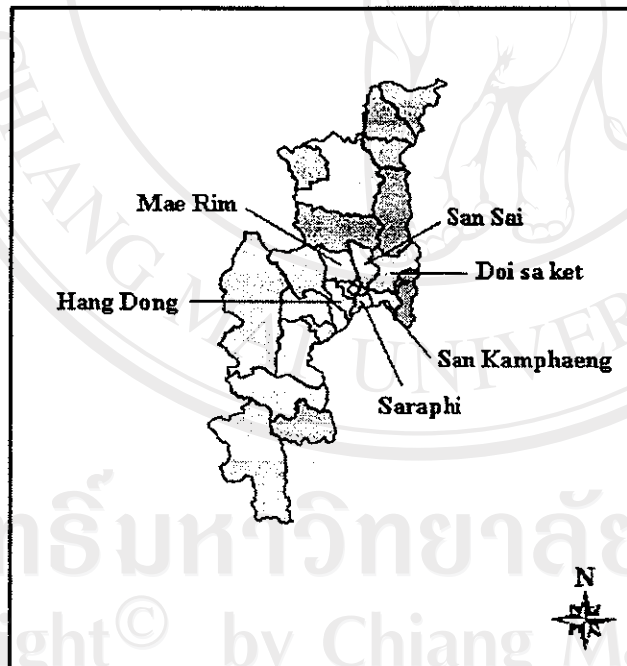


Figure 1.1 The peri-urban interface of Chiang Mai city

The boundary of peri-urban area of the Chiang Mai valley, for the purpose of the working definition, is defined as the area within one hour traveling distance from the Chiang Mai city. Administratively, this covers Chiang Mai Muang district and

The surrounding districts of Mae Rim in the North, San Kamphaeng in the East, Saraphi and Hang dong in the South, San Sai in the Northwest and Doi Saket in the Northeast (Figure 1.1). Topographically, the area is irrigated lowland with rice-based production systems. In 1992, the Department of Agricultural Extension (DOAE) launched the Crop Diversification Program to encourage farmers to convert their rice land to non-rice crops with emphasis on fruit crops and vegetables. This was seen as a new option for increasing farm incomes of the lowland rice farmers. (Gypmantasiri *et al.*, 2000).

Farmers who joined the program had chosen fruit crop, mainly longan and vegetables to replace lowland rice. Farmers would plant fruit trees and vegetables on the raised beds separated by ditches. Various land use systems were developed, sole crops of longan, and of vegetables, and intercropping system between the two commodities.

The production of longan and vegetables is chemical-based system. The growing concern of consumers on pesticide residues in food and farm produce has put pressure on the Government to take action. The Ministry of Health comes up with various campaigns such as “Clean Food Good Health”, and Ministry of Agriculture and Cooperatives develops “Good Agricultural Practices” (GAP) for various important economic crops, and promotes the production of organic agriculture, etc. The peri-urban farmers also recognize the hazard of the chemicals on their health and environment so that they want to reduce and /or abandon pesticide use.

### **1.1 Problem Statement**

Peri-urban agriculture plays an increasingly important role in food and income security for the small farm holders in the developing world. The growing concern of the urbanites about clean food and good health has put pressure on the government as well as the farmer producers to seek alternatives for production of pesticide-free and organic products. The farmers have recognized the effects of chemicals on their health and environment. Increasing concern of consumers about the health hazard have created demand for safe agricultural products especially on vegetables. The price difference between conventional vegetables and pesticide-free or organic vegetables is the main incentive for farmers to convert to pesticide-free vegetable production.

The price of pesticide-free vegetables selling in shops or supermarkets ranged from 20-50 percent higher than the conventional (Gypmantasiri *et al.*, 2000).

Government policy incentives also encourage farmers to convert to pesticide-free production by providing technical advices and material supports. Since the 8<sup>th</sup> National Economic and Social Development Plan (1997-2001), the Ministry of Agriculture and Cooperatives had launched the policy in reducing chemical use in agriculture, and forbidding advertising of chemicals in the government media, reducing the amount of chemicals imported, and encouraging organic fertilizer or bio-extract to farmers (Khanabkeaw, 2001). During the 9<sup>th</sup> Plan, the DOAE staged pesticide-free production campaign project and announced the year 2004 to be Food Safety Year (Department of Agricultural Extension, 2003). This would offer better market opportunity for farmers who engage in pesticide-free vegetable production.

In the past, conventional technology transfer to farmer was conducted through Training and Visiting (T&V) system. The approach was found to be less effective. Farmers were treated as information receivers and not as partners. The extension approach did not arrange activities for generating knowledge and developing skills in decision-making by farmers (Institute for Biological Agriculture and Farmer Field Schools – IBAFFS, 2000).

Since Farmer Field School (FFS) was successful in implementing IPM for rice farmers in Indonesia, the FFS-IPM has become a model for farmer education in Asia and many parts of Africa, Latin America and the Middle East. FFS activities in various countries are often conducted simultaneously with other conventional and participatory research activities, such as farming systems research. The hypothesis of this study is the participatory approach through FFS will capacitate farmers with better knowledge and skills, which would lead them to engage in pesticide-free vegetable production.

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## 1.2 Research Objectives

The objectives of this study are as follows:

1. To characterize peri-urban farming system and to determine farmer typology in the study area.
2. To apply FFS for pesticide-free vegetable production and determine its effects on farmers' performance.
3. To identify conditions necessary for successful conversion from conventional vegetable production to pesticide-free vegetable production system in peri-urban area of the Chiang Mai valley.



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