

## CHAPTER I

### INTRODUCTION

#### **1.1 Background and Significance of the problem**

Thailand is one of the countries that produces food to supply the world's population. About 42.4% of its total working population are farmers (Department of Labour Protection and Welfare, 1990). The agricultural sector is very important to Thailand as it is a source of export products and a part of strategies to alleviate poverty. Therefore, farmers must seek the best method to obtain the highest economic return on their agricultural productions while controlling for weeds, pathogens, and insect pests.

Using pesticides is one of the methods that farmers choose to control pests. The use of pesticides has increased in Thailand. Agrochemical expenses during the year 1996 to 2000 were 4,924; 6,398; 6,401; 7,281; and 7,294 million Baht/year, respectively (Agricultural Regulatory Division, Ministry of Agriculture and Cooperatives, 2000). The volumes of agrochemical imports were as high as 25,542; 27,127; 23,230; 33,969 and 31,453 tons from 1996 to 2000, respectively.

The causal factors for increasing quantity of pesticide use were that the majority of farmers did not follow the instruction labeled on the pesticide container and lacked knowledge and understanding about pesticides. As pesticides were not used correctly, the weeds then gradually developed their resistance to the effect of

pesticides and farmers then needed to increase doses of pesticides to obtain effective results (Sorat, 2004).

Jeyaratname (1990) found a significant problem of acute pesticide poisoning in Thailand. Acute poisoning was defined as an incidence which adverse reactions occurred due to high level of pesticide exposures. His study indicated that spraying without adequate protection appeared to be the major cause of poisoning. He also suggested that a high level of exposure to pesticides may have chronic adverse effects on human health and environment.

WHO (1985) suggested that acute pesticide poisoning was a major health concern in Thailand because pesticides caused illness and death in the citizen. Factors that influence hazard included type of formulation, type of packaging, concentration of the pesticide, method of application, amount of surface or area to be treated, and required dosage.

Occupational diseases data from Epidemiological Division, Ministry of Public Health (2003) showed that, there were 4,398(71% of all occupational diseases cases being reported); 3,930(67%); 3,109(40%); 2,653(45%); 2,571(55%) and 2,349(55%) cases of pesticide poisoning from 1998 to 2003, respectively. Moreover, a number of deaths among pesticide poisoning cases was 15(88% of all deaths from occupational diseases); 30(100%); 21(75%); 15(93%); 11(91%); and 6(66%) from 1998 to 2003, respectively. When compared mortality rate of pesticide poisoning with other

occupational diseases in 2003, the second highest rate was only 11%. This shows that the pesticide poisoning is the important problem among all occupational diseases.

Table 1 shows that Sukhothai was ranked fourth in incidence rate of pesticide poisoning among all provinces in Thailand (Bureau of Epidemiology, Ministry of Public Health, 2003). Most top-rank provinces with pesticide poisoning were in northern Thailand.

Table 1: Top eight incidence rates of pesticide poisoning per 100,000 populations in 2003 by province, from surveillance system (506 Form) (Bureau of Epidemiology, Department of Disease Control, Ministry of Public Health, 2003)

<b>Province</b>	<b>Region</b>	<b>Rate per 100,000 pop.</b>
1.Uthaithani	Central	44.11
2.Phichit	North	23.70
3.Kampangphet	North	20.36
4.Sukhothai	North	20.22
5.Nakhonsawan	North	19.40
6.Phetchaboon	North	18.70
7.Phitsanulok	North	15.33
8.Phetchaburi	Central	8.23

Even though above incident rates reflected overall problems, there were also a lot of agriculturists taken risk without symptom because the disease or health problem had long incubating period and rarely diagnosed at initial phase. In addition patients treated in private hospital were not accounted for in these reports (Wachratewinkul,

1980; Wongphanich, 1985). Therefore, the number of cases should be higher than what actually being reported.

There is a need for a more innovative strategy to reduce risks of pesticide poisoning among agriculturists. Health education is one of the methods for increasing the knowledge and awareness among agriculturists. However, health education provides only one-way communication with no interaction between the agriculturists and public health staff. Thus, this project adopted life skill teaching techniques by applying participatory learning in the occupational health work for agriculture area.

Activities of participatory learning comprise 4 components: experience, reflection and discussion, understanding and conceptualization, and experiment (Kolb et al., 1991). It was expected that employing participatory learning emphasizing on people center should be the answer for appropriately solving pesticide used problem of the community.

## **1.2 Conceptual Framework**

The conceptual framework of this study was to examine the effectiveness of the participatory learning program towards knowledge, attitude, and practice. Independent variable (participatory learning program) and dependent variables (knowledge, attitude, and practice) are shown in Figure 1.

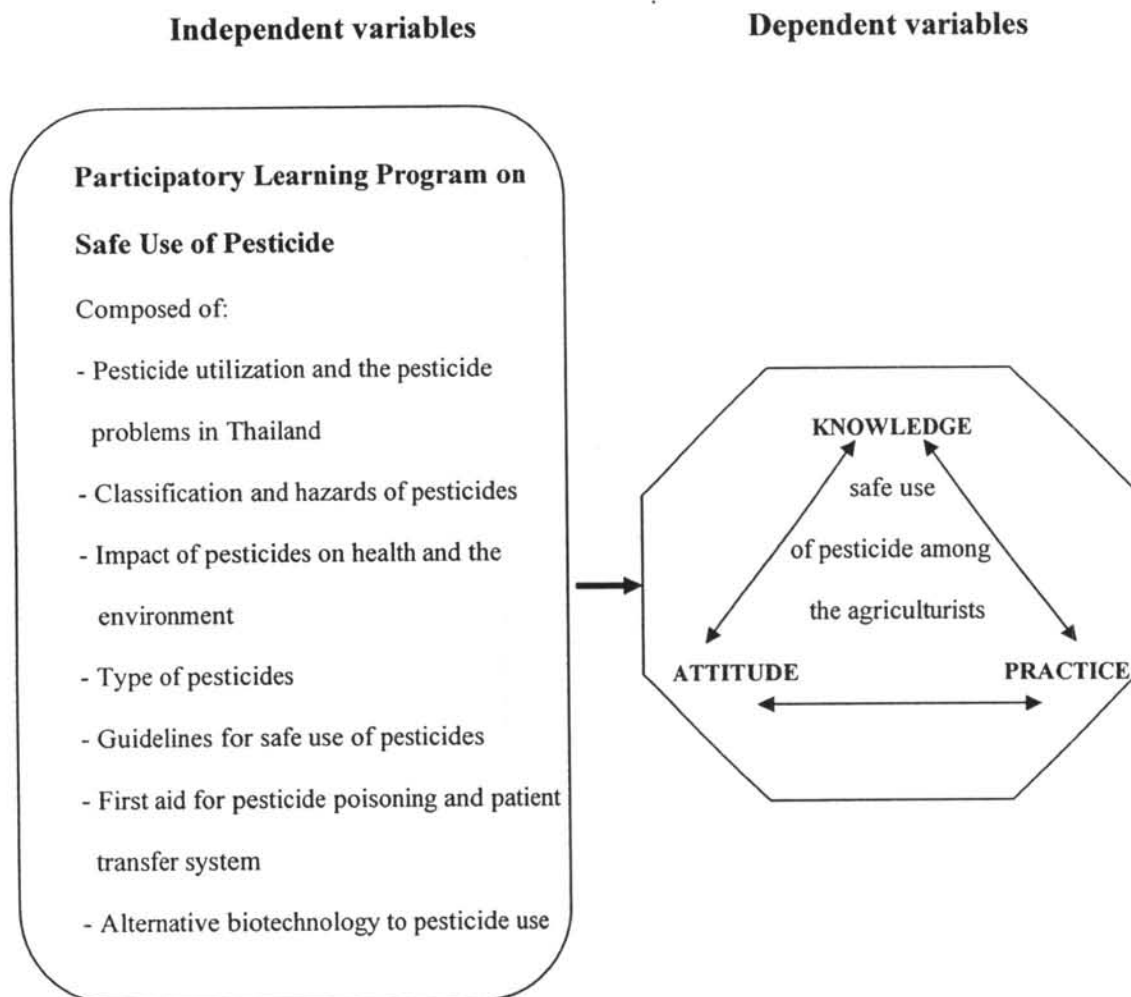


Figure 1: Conceptual Framework

### 1.3 Research Objective

To study the effectiveness of the participatory learning program on the safe use of pesticide by measuring knowledge, attitude, and practice (KAP) among agriculturists in Srinakorn district, Sukhothai province.

#### **1.4 Research Specific Objectives**

1. To educate and train the agriculturists with a participatory learning program on the safe use of pesticide.
2. To study the change in knowledge, attitude, and practice (KAP) in pesticide utilization.

#### **1.5 Research Question**

Does the participatory learning program on the safe use of pesticide effectively increase knowledge, attitude, and practice (KAP) in pesticide utilization among agriculturists in Srinakorn district, Sukhothai province?

#### **1.6 Research Hypothesis**

The participatory learning program would increase mean scores for knowledge, attitude, and practice (KAP) in pesticide utilization.