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KUNTAROS PONGKHAEW : AN ECONOMIC EFFICIENCY AND ATTITUDE ANALYSES OF VEGETABLE PRODUCTION USING INTEGRATED PEST MANAGEMENT, NETTING AND CHEMICAL APPLICATION TECHNIQUES IN SONGKHLA PROVINCE. THESIS ADVISORS : NATHSUDA PUMIJIMNONG, ASST. PROF. DR., KORBKIATI BANSIDDHI, M.Sc. (ENTOMOLOGY), AYUT NISSAPA, ASST. PROF. DR., AMNART WONGPINITWARODOM, M.E., 187 p. ISBN 974-661-948-9

One important problem in agriculture is the over-use of inputs. If farmers use the optimum amounts of certain inputs, they can not only save money but also decrease the impact of the over-use of chemicals on the environment. Four factors were examined in this study : labor, inorganic fertilizer, organic fertilizer, and chemical pesticides. The three kinds of vegetable crops used in the study were Chinese kale, Chinese white cabbage and Chinese cabbage. Three types of pest management (integrated pest management, netting, chemical) were also used. The study area was located in Amphor Rattaphum and Amphor Khuan Niang in Songkhla Province. These are important vegetable producing areas in southern Thailand. The objectives of this study are ; (i) to compare costs of production and returns from vegetable production between the different pest management methods ; (ii) to analyses economic efficiency and marginal return on inputs ; and (iii) to study attitude of the farmers toward the use of the three methods of pest control. Data concerning integrated pest management and netting were drawn from all farming households in the area which used these techniques, 20 and 19, respectively. Chemical application data were drawn from 50 area farming households chosen by simple random sampling method. The period of study was January 1998 - March 1998.

A comparative analysis of cost and return of the three kinds of vegetables using three types of pest management was done using Duncan's New Multiple Range Test (DMRT). DMRT showed that for each kind of vegetable the average sale price of vegetables grown differed significantly between pest management methods, but total net profit (total income - total cost) did not differ significantly. Farmers who used netting had higher income than using integrated pest management and chemical application, though not significantly so. An analysis of Cobb-Douglas production function specifying the vegetable production as a function of four factors was performed. The results indicated that independent variable of chinese kale is not significant, whereas vegetable production is characterized by decreasing returns to scale for chinese white cabbage and chinese cabbage using three types of pest management, except for chinese white cabbage using integrated pest management which showed increasing returns to scale. Analysis of economic efficiency indicated that these is a decreasing marginal return on the amount of inputs used. Attitude analyses of farmers using integrated pest management, netting and chemical application by probit and logit model showed that sickness, the opinion of coordination, the numbers of agricultural information, the experience of planting vegetables, income and the number of insects and organisms beneficial to vegetables are significant to changing attitude factors. The results of the study show that analysis of economic efficiency can indicate the marginal return on inputs, but it cannot indicate optimum crop yields. The government sector should provide information about individual social and environmental factors which influence attitude.