Nanthaka Thuychan 2013: Planning under Price Risk for Crop Production in Greenhouse of Muang Kham Village, Chiang Mai Province. Master of Science (Agricultural Economics), Major Field: Agricultural Economics, Department of Agricultural and Resource Economics. Thesis Advisor: Mr. Chakrit Potchanasin, Ph.D. 137 pages.

The present study aims at analyzing optimal production plans under the current and price risk condition. To conduct the analysis, the study employed Quadratic Programming model with the secondary data of production year 2009/10. The data were obtained from the Uplands Program which had conducted the survey by interviewing farm samples of the central part -Muang Kham village- of Mae Sa Watershed, Mae Rim district, Chiang Mai province. In addition, cluster analysis was applied to classified farm samples into 3 groups. The first group was characterized by 1.36 rais of land holding size, 86,283.62 Baht/year of cash and 32.85 mandays of household labor availability while the second group had 3.10 rais of land holding size, 1,031,600.50 Baht/year of cash and 34.48 mandays of household labor availability. The third group was the farms who were holding 4.38 rais of land holding size, 189,225.05 Baht/year of cash and 45.20 mandays of household labor availability.

The study results under current production condition showed the optimal plan for the first group which the farms should produce tomatoes throughout the year which they could earn total gross margin 1,335,015.21 Baht. Optimal plan for the second group consisted of bell pepper production under GAP as the main crop including tomato as a second crop and could receive total gross margin 773,459.73 Baht. Also, the third group's optimal plan composed of tomato as the main crop and, additionally, bell pepper production could be grown which the farms could get 2,070,830.53 Baht of total gross margin.

Furthermore, the optimal plan for all 3 farm groups with considering price risk at different expected income levels was characterized that the farms should change either kind of crops, produce multiple crops or differentiate crop production into different time periods depending on expected income level. The results also showed that if the expected income was reduced, risk or income variation would be reduced. Additionally, production by following the optimal plan would lower toxicity to either farmer, consumers or environment. However, the toxicity that occurred was still higher than the average toxicity of crops which were producing in the area.

_____ _____ ___ / ___ / ___

Student's signature Thesis Advisor's signature