

Chaniga Laitae 2011: Sustainability of Agricultural Resources of Farm Households in Mae Sa Watershed, Chiang Mai Province. Master of Science (Resource Management), Major Field: Resource Management, Interdisciplinary Graduate Program. Thesis Advisor: Assistant Professor Suwanna Praneetvatakul, Ph.D. 110 pages.

Agricultural development in the past has caused on the degradation of natural resources and environment. Upland watershed area is important for soil, water and ecosystem resources. Hence, agricultural production in this area should be targeted to sustainability. This study aimed to analyzing the sustainability of the agricultural resources of farm households in Mae Sa watershed using sustainable efficiency indicator. The data were collected by interviewing farmers from 38 households in the 3 cropping years during 2000/01, 2005/06 and 2008/09, a total of 114 samples. The analytical methods covered sustainable efficiency indicator, measured by value added of capital cost and agricultural resources of households, and factors affecting the sustainability of the agricultural resources of the household in the cropping year 2008/09.

Results of sustainability, using the sustainable efficiency indicator found that the sustainable efficiency of the farm households in the cropping year 2000/01 2005/06 and 2008/09 were 1.17, 1.31 and 0.67 respectively. The sustainable value of the household was greater than or equal to 1.00 indicating a highly sustained households. In this study, highly sustained households were 47.37%, 42.11% and 26.32% of total households in three cropping years, respectively. Considering the value of the capital factor and resources of households comparing in the three crop years, it showed that the average value contribution from land use and cost of fertilizers has decreased in the past period. When factors affecting the sustainable efficiency of the agricultural resources of the households in the cropping year 2008/09 were considered, It indicated that agricultural area size and net farm income are the significant factors positively related to the sustainable efficiency in the same direction. That means when these factors increased, they increased the efficiency of agricultural resources utilization of the households accordingly. On the other hand, the factors such as ratio of household labor to the agricultural area, ratio of cost of fertilizer to cash costs and non-farm income of household were the significant factors negatively related to the sustainable efficiency.

Therefore, for the sustainability in agricultural resources utilization of households in Mae Sa watershed, related stakeholders and policy makers should encourage upland farmers to operate their farm with agricultural diversity concept. To achieve efficient use of agricultural land, including ways to support sustainable agricultural resources and ecosystems management in highland, using manure and composting to improve soil fertilizing, reducing the use of chemical fertilizers and pesticides, crop rotation and cover cropping are recommended.

---

Student's signature

---

Thesis Advisor's signature