

1. INTRODUCTION

The traditional farming practice on the steep land of the Upper North is predominantly a system of shifting bush fallow, where in the past it was an efficient and stable food production system. In recent years, problems arise when land becomes limited due to increasing population in the region, the system has become less effective and soil productivity has declined. This prompts some agencies and hill farmers to try to modify the production system to become more productive.

Cash crops have been introduced for the purpose of increasing farmers' incomes while many development agencies have tried to develop the conservation practice to the sloping area. For instance, mechanical terracing technique was introduced but this technique was found to be difficult to be managed by the farmers. This was followed recently by grass strip cropping and agroforestry systems such as alley cropping which has become the dominant conservation practices introduced for the sloping lands.

The alley cropping has been shown experimentally to be effective in soil conservation and increasing crop yields (Inthapan and Boonchee, 1990). The practice has also been extended to some villages in the Upper North, but not

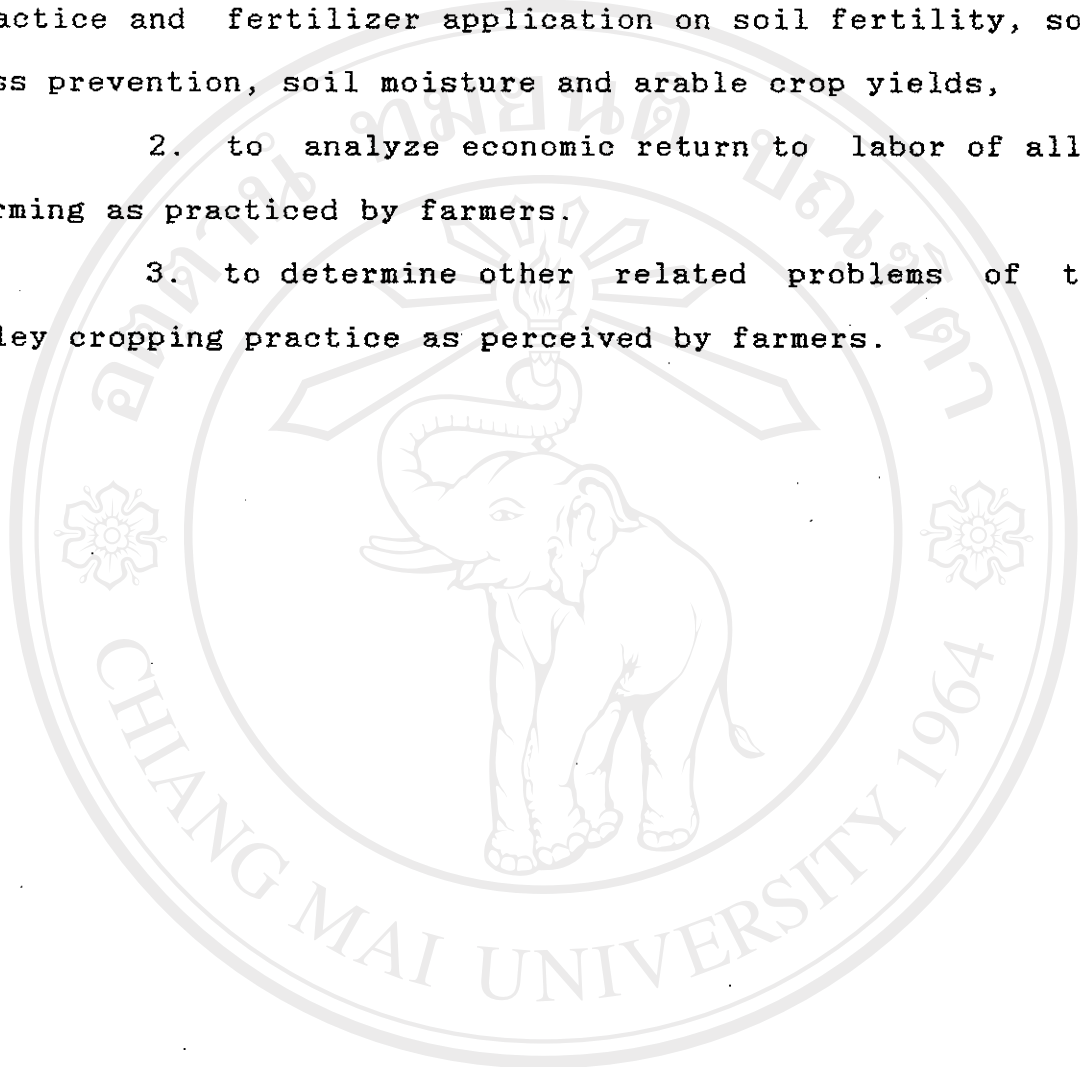
many farmers are willing to adopt it. The system requires more labor input, timely management and also reduces arable cropping area.

In addition, upland and highland soils were shown to be low in phosphorus level, particularly not sufficient to sustain normal growth of most leguminous crops (DLD, 1985; DA, 1980). Such deficiency would not be able to be supplied by the system, so that the external fertilizer is needed to provide optimal crop growth.

Therefore, the evaluation of specific agronomic practices on crop production and soil fertility in association with alley cropping system will provide useful information for management of steep land agriculture. A study on patterns of labor utilization, relevant problems and farmers' opinion which are related to their adoption on alley cropping practice will provide an understanding of its appropriateness under farmers' circumstances which will be a basis for the future extension work.

The objectives of this study are:

1. to measure the effects of alley cropping practice and fertilizer application on soil fertility, soil loss prevention, soil moisture and arable crop yields,
2. to analyze economic return to labor of alley farming as practiced by farmers.
3. to determine other related problems of the alley cropping practice as perceived by farmers.



ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved