

3. Description of the study area

Ban Huay Som Sook is located at Tambol Saluang, Amphur Mae Rim, at a distance about 42 km northwest of Chiang Mai. The elevation is about 500 m. above sea level. Most of the areas are steep land with slope greater than 30 percent. In 1990, rainfall of 849.5 mm. was recorded at the village from June to December and 818.1 mm. from Mae Rim district. Average rainfall of 20 years from this district was 1010.4 mm. per year (Figure 1).

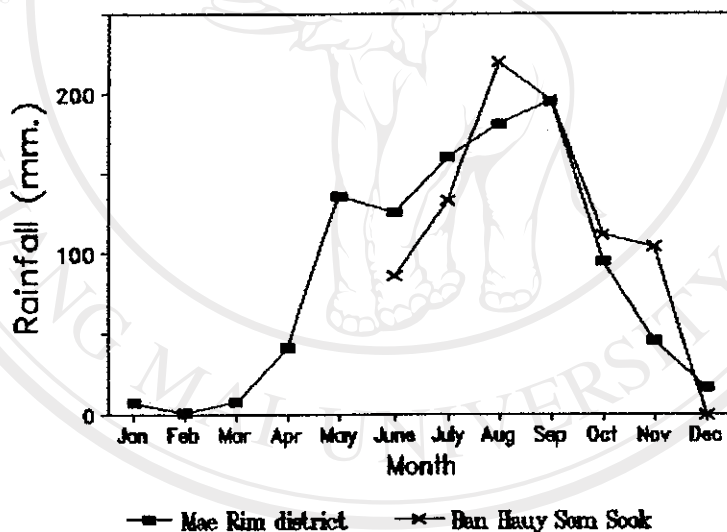


Figure 1 Rainfall data in Ban Huay Som Sook and Mae Rim district

The village was first settled 35 years ago by the landless northern Thai (Khon Muang). At present it consists

of 28 households of northern Thai and 4 households of recently migrated hill tribe immigrants.

The forest land has been encroached and turned to crop land with upland rice as a main crop. Smaller proportions of land on the lower slope have been made into terraces and paddy rice is cultivated. Productivity of upland rice is low. Leguminous crops such as soybean, peanut and mungbean were recently introduced as alternative cash crops in the rainy season. The reforestation policy has encouraged farmers to develop permanent land use system by establishing selected fruit trees such as mango, lychee and longan. Farmers have hoped that such practice would allow them to be able to cultivate the land permanently.

Farmers derived their daily income as waged workers within the village or from the reforestation project of the Forestry Department. Other sources of income were derived from selling forest product such as bamboo shoot, mushroom and from occasion illegal lumbering.

The above wage earning activities provided daily household expenditure. Farmers still considered cash cropping as an important activity to provide lump sum for future investment and saving. Therefore proper management of cropping systems on the steep land was crucial to their

livelihood. In 1986, a nongovernmental organization, Project for Ecology Recovery had introduced hedgerow intercropping to the village for conservation practice on the steep land. *Leucaena leucocephala*, *Gliricidia sepium* and *Cajanus cajan* were used as contour hedgerows to facilitate the formation of natural terraces. Annual crops such as upland rice and legumes, and fruit trees were planted in the interspace between hedgerows.

Only two farmers have adopted the introduced hedgerow intercropping. One selected gliricidia as hedgerow and intercropped with variety of fruit trees. The other preferred leucaena and established integrated cropping systems consisting of woody perennial and legumes on the space between the hedgerows. Upland rice was not included in the system as the crop was observed to grow poorly under narrow spacing of hedgerows.

Legume crops on the steep land had shown to provide lower yield than the lowland. From soil analysis of the alley field of one of the farmers in Ban Huay Som Sook revealed that available P was low both on the alley field in which crops were grown every year and non alley field in which crops were grown in some years (Table 1).

Table 1 Some chemical characteristics of soils on the upland site at Ban Huay Som Sook with 20 to 45 percent slope.

	pH	OM (%)	N (%)	P (ppm)	K (ppm)	Ca (ppm)
Alley fields 1989	5.5-6.4	1.28-2.49	0.060-0.126	4.5-9.5	142-250	-
Alley fields 1990	5.3-5.7	2.71-3.22	0.115-0.177	1.5-3.3	145-245	625-764
Non-alley 1990	6.1-6.3	2.60-2.80	0.117-0.119	3.7-3.9	230-270	806-834

The farmers in the village were aware of the limitation of soil fertility for leguminous crops. Therefore they used recommended fertilizer for soybean cultivation.

Thus, the farmer's objective was to establish permanent agriculture on the steep land through integrating fruit trees along the contour hedgerows. However, his short term aim was also to maximize return from land by cultivating peanut and soybean, as both crops provide high market price.