Thesis Title	Study of Farming Systems for Sustainable Development : Suitable Crops for Mooban Bor Maung Noi and Huay Nam Pak, Tumbon Sangpha, Nahaew District, Loei Province
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Abstract

This thesis is to study suitable crops for the Mooban Bor Maung Noi and Huay Nam Pak. To justify that farmers' knowledge and experience, market demand, suitable environment, and plant physiology are used with the technique of Manual GIS incorporated with agronomy and horticulture expertise's decisions. The study was divided into 2 main parts. Firstly, surveying and collecting information on community structure and environmental factors (both physical and biological) from the two communities are approaches to establish a household's database in the studied villages. Using ARC View version 3.0, the database was classified into 3 main categories which were general income statistics, environmental surrounding and on farmland. The results showed that the total household numbers in both Mooban Bor Maung Noi and Huay Nam Pak decreased from 75 in 1989, the year of villages establishment, to 65 and 52, in 1998, respectively. The ratio between male and female were comparable. Most people were in adolescent (out of schoolage) and they completed primary school under level 7 according to former Thai educational standard. Almost all families in the two villages are farmers who grow upland rice as major or staple crop and some also grow fruit crops as cash crops. Some of them work as labor employee for a living. This is only enough for part of their income. In other words, most of the two villagers are confronting poverty problem. They are likely to have lower income than revenue which is a lot lower than national gross product revenue. Therefore all farmers join a program set up by the Agriculture and Cooperative Bank. Due to the lack of

income or unsuccessful crop plantation, the farmers invade and destroy forests to consume natural resources including bamboo shoot, mushroom and wild life animals, as their foods. For agricultural practices, two villagers grow their crops in the row system. However, they are accustomed to growing their crop as monoculture or single crops culture without using any farm management. Type of plants selected for their farms, is based on their experience not to meet the marketing demand and most plants are supplied by the governmental supporting units. After ploughing their field, they grow their crop without any fertilizing scheme. They hardly pay any attention on their farms and all of them do not at all use any machinery tools on farming. Therefore, the crop production from these areas is lower than the average crop production except ginger.

Second part is the study on how to select suitable field crops, fruit crops, vegetable crops and floriculture crops within the area base on the above four criteria. The most suitable plants appear to be local species found in the area. According to information analysis and expert's opinion, jack fruit, groundnut, cotton and banana are most suitable for growing in Mooban Bor Maung Noi. Jack fruit is the one of the most highly recommended by farmers eventhough its demand and the geographical characteristics of the planting location are moderate. Groundnut, cotton, and banana are the most suitable in term of farmer's need and market demand but their comparability in term of their physiology and surrounding environment are average. The upland rice is well-suited for growing in Mooban Bor Maung Noi. Although the demand for upland rice is high, soil fertility, land slope, cultivation method, nurturing procedure, soil enrichment and pest protection scheme can be obstacles for production. According to farmer's knowledge and experience and market demand, banana and upland rice are highly suggested for growing in Mooban Huay Nam Pak, eventhough the natural environment and their physiology are moderate. Cotton and groundnut are not suitable to grow in Mooban Huay Nam Pak, but both are suitable for Mooban Bor Maung Noi. In the later village besides low farmer's demand for growing, breeding strain related problem, the surrounding environment and nurturing condition can make growing cotton unsuitable. These common problems are also observed in the groundnut case. The only different is that groundnut is more attractive to farmers because of its know-how. However, it has no market values both inside and out of the village and thus makes them not suitable for growing.

In conclusion, the plants selected for growing in these two communities are different depending on various factors discussed above.

Keywords : Suitable crops / Farmer's knowledge and experience / Market demand / Environment / Plant physiology / Mooban Bor Maung Noi / Mooban Huay Nam Pak