

Abstract

The highland is area a lot of diversity with geographies, natural resources and ethnic groups. They are affecting to agricultural systems of community on highland. The highland agricultural bounds were classified by the highland research and development institute (HRDI) all 5 type i.e. 1) communities ever plant opium basis, 2) communities plant tidbits wrapped in leaves, 3) communities plant upland rice–maize, 4) communities plant main paddy and 5) communities have specific area, that considers from aspect of physical biological and way of life in agriculture basis. For the principles of this study is research about spatial for lead to advantageous research result, which it can solve problem and develop agricultural systems appropriate environment of agricultural and ecology each type on the highland area. Mae Song, Highland Development Project Using Royal Project System is the one of research area that classified in rice-corn cultivation community. Situation at Moo 12 Tambon Mae Song Amphoe Tha Song Yang, Tak province, distance from Chiangmai Province about 429 kilometer by 7 hours in dry season but 9 hours by rain season. Altitude about 300-1,600 meter above median sea level, most population are Karen (Skor). There are 3,085 household, and 9,367 peoples. The farmer are grows field rice, paddy rice and corns, feeds animals, and hunt for foods. The main problem is low yields of rice, the average of field rice were 244 kg/rai and paddy rice were 303 kg/rai. Almost peoples are poor, don't have occupation income and far from civilization, inconvenience communications especially in rain season.

For the fiscal year 2560 B.E., the action research in Karen's communities participant in the food security were done in 3 house patch, Wadogro, Teesoky (Moo12), Sokaewaky (Moo8). The aims of this research are 1) test the increasing yield of paddy rice technology on highland, 2) test the technology for upland rice planting system with soil and water conservation, and 3) test the optimize selective plants for grows in the area. The result shown that single paddy rice growing with rice – fish farming could increase the yield to 16% (from 509 kg/rai to 591 kg/rai). Furthermore, the fertile soil restoration in field rice was done by using soil and water conservation, in 2 farmer's area, 6 rai. The process separated to 2 treatment, first, ordinary process by farmer and the second using the soil and water conservation combined in planting (hillside ditch / planting legumes transverse slope / legumes planted ground cover). The result of Agricultural ecology's community analyses and marketing opportunity of agricultural goods grains 3 selective groups of plants, such as vegetables (pumpkins), field crops (navy bean, peanuts, kidney beans), Fruit trees (avocados, mangos) to produce income and Strengthening food security.

Key words paddy rice rice-fish farming soil and water conservation system