## Abstract

This research program aims to knowledge and agriculture innovation development and ecosystem conservation with the participation of society, communities, Karen. In development, income and food security of the household under a system using land resources, Forests and biodiversity in Kun Tuen Noi communities in Mae Tuen Sub-district, Omkoi District, Chiang Mai, who has rice farming is the main occupation and limited choices of crop. This research program is Participatory Action Research (PAR) in pilot areas, Kun Tuen Noi, Pi Por, Ler Gar and Bra Gro.

The results were alternative crops appropriate 3 areas: (1) the highlands at 800-1,100 meters: the local plants and fruits (Persimmon, Avocado, Mango), (2) the highlands more than 1,000 meters: the local plants, fruits (Persimmon, Avocado) and vanilla (3) the farmland: peas, sweet peas, Coriander, White Radish and Red Kidney Bean. Thirteen herb plants were collect and five herb plants were tested. For sustainable land utilization: Karen community to settle in the area near water sources, has rice farming is the main occupation by in-season rice field and rotational framing system. and vegetation various were rice field.

Keywords: area-based research, household economy, ecosystem, Kun Tuen Noi