Abstract

This research program aims to sturdy cropping systems which generate high return per unit of land use, improve productivity and marketing of existing crops, and guidelines for community participation of water resource. The research program embedding participatory action research has conducted in the 3 pilot villages; Mae Toe-Mae Chan Luang, A-Bae and Pa Kha Samakee.

The finding revealed that the cropping system in Mae Salong is classified into 3 agro-ecosystems. At the elevation above 1,000 metres, Arabica coffee and plum are major crops while corn and vegetable are cultivated at 800-1,000 meters and mostly rice at 500-800 meters. The research program was designed with two channels that includes improving productivity of existing crops and testing alternative crops. Plum has been grown widely in Mae Salong but its annual quantity and quality is fluctuated. The research program introduced grafting of existing variety with *Gulf Ruby*, a table plum whose size is bigger than existing variety, better taste and appropriate with highland environment. 120 plums were grafted in cooperation with three farmers and its survival rate was 95%. Moreover, processing of existing plum to various value-added products was made. The consumer samples found the highest satisfaction of plum jam, plum juice, candy and dried plum respectively.

Alternative crops were selected according to elevation and market potential especially during winter season when big numbers of tourist visit Mae Salong. Good quality of Royal Project strawberry has been tested for runner production in comparison with local ones inside the green house and outdoor found that strawberry plant has 7 runners per 1 plant in average. Each runner can produces 3-5 runners. The alternative crop trial also includes integrated farming of avocado, macadamia with local plants, windbreak plants and vetiver in 6 farmer farms in Mae Toe-Mae Chan Luang and A-Bae

Furthermore, the study of guidelines of water resource management by community participation, we collected and surveyed water using of Mae Toe-Mae Chan Luang community. It was founded that the community has sufficient water for consumption distributing by Mountain Water Supply. For agriculture, the community mainly uses rain water but they have to face water shortage period every year during April – May. Therefore, they should have proper water resource management and should cultivate drought tolerance crops.

Keywords: Mae Salong,plum, Water Resource