

## CHAPTER VII

### CONCLUSION AND RECOMMENDATION

#### 7.1 Conclusion

The Chom Thong LRA is like most of the land reform area elsewhere in that it is less fertile and lacks a water supply. About half of its area are moderately suited for upland crops, However, most of the areas are more suitable for some perennial species. Sampled farmers were classified into two groups. The first group called group 1, about 64% of whom held land only within LRA and 36% were group 2 farmers who own land both inside and outside the LRA.

The Agricultural Land Reform Office (ALRO) allocated about 5 rai of the reformed land, to each farmers whose family size and working labor were about 3.92 and 3.00 persons.

Six cropping systems, (monocrop tobacco, monocrop soybean, soybean-tobacco, soybean-mango, tobacco-mango and tobacco-tomato-mango) were common cropping systems practiced by the LRA farmers in 1989/1990.

Tobacco and tomato, high capital demand and labor intensive crops, were found among those groups of farmers who cultivated partial LR farm land. Soybean, an inexpensive crop, on the other hand, was mainly adopted by the groups who fully utilized the LR land. The result showed that the larger farm size and more time allocation for off-farm jobs were highly significant in limiting those farmers to fully use their land. Thus, a crop that requires

less capital and probably less labor would significantly enable farmers to fully cultivate their farm land.

The analysis of efficiency of resource utilization in Chom Thong LRA was carried out for two major crops i.e. tobacco and soybean. The uses of fertilizer and other cash expenses approached the optimal level. However, labor was somewhat over employed in relation to production technology.

As for soybean production, except for fertilizer, farmers, overused all inputs i.e. labor and other cash inputs, whose efficiencies should be improved. As for the prevailing prices fertilizer seems to be an important key factor in raising soybean yield and consequently in raising the productivity of labor and land.

Among those six cropping systems, soybean-mango (SBMG) farmers earned the least while those who selected tobacco as monocropping obtained more than double that of the farm income earned from the LRA land. This was because the return per unit on inputs was quite high in tobacco production which could raise higher income for its growers.

All farmers earned income from off-farm occupations. Some might need more income to fulfill their basic needs and others had just enough income for survival and sought for off-farm work when they had free time. Thus, the study tried to determine how to allocate land, labor and capital resources among farm activities and off-farm jobs to obtain the optimum present value of net income for a ten year a period.

The results reveal that under the conditions of 5 rai of farm land and 2.96 persons of farm labor availability, 116.19

mandays of off-farm opportunities at 70 baht/day of wage rate, and the prices at 9.07, 2.60, 2.00 and 3.00 baht/kg for soybean, tobacco, tomato and mango respectively, mono tobacco cropping system was the optimal solution for the ten year plan. When farm size increased above 8.55 rai, the cropping the pattern changed to the diversified activities of mono tobacco and tobacco-mango. Similarly, with the minimum farm labor (1 person) mono tobacco and tobacco-mango appeared in the solution. In both cases, some additional hired labor were demanded during the first three years.

Output prices significantly influence changes in cropping patterns in the solution. When the tobacco price dropped to 2.40 baht/kg or under or when the tomato price increased to be 2.20 baht/kg or above, then tomato was recommended to completely replace tobacco.

In the case where mango was a local type, its price was usually low (at about 3.00 baht/kg). At this price, mango was not profitable enough to enter in the optimum plan. Better varieties with the price equal to or above 5.00 baht/kg would make it possible for farmers to grow mango. However, tobacco is recommended to intercrop with mango during the first three years to provide some income for household consumption and make efficient use of the land. Tomato and mango are the preferable choice to tobacco in the future when market demand for tobacco declines.

In the northern zone of the Chom Thong LRA where the dominant existing system was soybean, then only soybean and mango activities were considered in the farm model planning. It was found that monocrop soybean was suggested for the whole plan and soybean-mango integration appeared in the first to the fourth year. A

greater part of the farm plot was assigned for soybean-mango and the smaller was reserved for soybean monocropping. The present value of total net income of the above mentioned cropping systems were about 43% of the BFP. This was due to lower returns of soybean and mango.

It was noticed that when farm size was 10 rai, the same production activities appeared in the solution, since there were no other choices. Farm size expansion merely raised those activities' sizes and the present net income by double that of the 5 rai result. And when farm labor was available at the minimum level (1 person/household), the solution did not differ from that of the original 5 rai (when labor = 2.96 persons/household). This implies the advantages of soybean and mango in the case of critical labor shortage.

However, one may ask whether mango will be excluded from the solutions. That would happen when soybean price rises to 10.90 baht/kg or above or when the mango price drops to 2.65 baht/kg or under.

Programming solutions also suggest that farm size together with labor, capital and output price interrelatedly influence production size and cropping systems. Besides this, all programming solutions recommended for farmers to spend their free time on off-farm works during non peak-season.

All rights reserved

## 7.2 Recommendation

The following observations can be made from the study :

1) The findings of the study showed that the farmers would have part of their land idle when they felt that they did not have sufficient labor or capital, or that their land was severely depleted. However, land use intensity declined as farm size and off-farm income increased. Farm labor availability was not a determinant to land use intensity in any cropping systems, while a low capital demand crop, soybean, allowed farmers to fully cultivate their land. This implies that capital is generally more crucial than labor for those partial land cultivators.

2) As for the prevailing prices of input and output and production technology, fertilizer was under employed while other cash materials and labor were over utilized. In order to raise the productivity of the land, labor and other cash inputs, one should explore two possibilities : (1) whether the present cultivation practice was appropriate and if so, (2) is there any improved technology feasible (e.g. application of rhizobium for soybean).

3) The physical condition in the Chom Thong LRA was more suitable for fruit trees than for field crops, especially in the northern part of the LRA. The actual cropping systems did not conform to land suitability. That is considering the physical condition the whole area should have been used for mango. However, if prices and costs were taken into account, tobacco would be more appropriate.

4) Tomato is one of the promising cash crops suitable to substitute for tobacco if its market demand persists or if the tobacco market demand declines.

5) Five rai of land has been proved too small to support a family eventhough family labor (about 3 persons) and available capital are fully utilized. Small farmers in the LRA can hardly be self-sustaining unless they can manage to earn income from high value crops. For the Chom Thong LRA, in particular, more alternatives such as good mango varieties and especially, high value annual crops should be explored by using the 10-year programming model. If part of land is set aside for annual cropping, the farmers should be trained to become knowledgable, flexible and skillful in order to cope with the nature of fluctuating market demand.

6) The findings confirm that off-farm work is an essential source of income especially when the farmers' crop choice was low-valued, like soybean.

7) The programming model results may seem impractical because of their decimal value. However, rounded figures are good approximates.

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

Copyright© by Chiang Mai University

All rights reserved