

CHAPTER VII

CONCLUSION AND RECOMMENDATIONS

As a cover crop, legume *Stylosanthes hamata* can be a component of farming system especially in rainfed upland area. It can play an important role in order to achieve benefit regarding soil improvement, weed suppression, decreasing fire hazards as well as getting forage for cattle. Hence, it is important to know the level of existing knowledge and management practice of mango growers concerning this cover crop. The study was conducted among thirty-eight of mango growers. The result showed that some farmers had knowledge about the beneficial effects of *S. hamata*. Regarding the harvesting time, most farmers preferred to harvest twice in a year. Nevertheless, about half of them did not know about this legume cover crop. In addition, using as cattle feed, they did not have any knowledge of *S. hamata*. Moreover, they have a big gap of knowledge regarding the other benefits of this crop such as soil protection, weed suppression, fire hazard etc. For this reason management of legume cover crop in mango based integrated farming system is a challenge.

The management strategies (phosphorus fertilizer, weeding and cutting practice) of *S. hamata*, broadleaved weeds and grass weeds in the third year were studied.

As regards to *S. hamata*, phosphorus fertilizer affected on population and height of newly germinated plants. Also, it affected on the growth of mature plants and dry matter at mid wet season as well as on ground coverage during mid to late rainy season. However, phosphorus fertilizer did not show any effect on forage qualities. Weeding practice did not affect on *S. hamata* in respect to plant numbers, height, ground coverage, dry matter and forage qualities throughout rainy season. Moreover, cutting practices of *S. hamata* affected on population and height of newly

germinated plants during mid to late wet season. Also, it affected on ground coverage and forage qualities (NDF, ADF, CP and DM) at late wet season. Nevertheless, dry weight was not affected by cutting practice.

Various types of weed species were noticed in *S. hamata* field. As the most notorious weed *Richardia brasiliensis* and *Rhynchelytrum repens* were appeared during early and mid wet season. In the late wet season, *Borreria laevis* was showed to be most serious one followed by *Urochloa distachya* and *R. brasiliensis*.

In regard to effect of management on broadleaved weeds and grass weeds, phosphorus fertilizer influenced on population during mid wet season and ground coverage during mid to late wet season although no any effect was found on height and dry matter. Weeding practice affected on height of predominant weed and ground coverage at mid wet season excluding weed population and dry matter. In addition, cutting practice affected on height during mid to late rainy season when ground coverage and dry matter at late wet season. However, it did not show any effect on weed population.

On the basis of the present finding it can be inferred that phosphorus fertilizer should be applied on *S. hamata* before wet season, while cutting practice should be done before stopped rainfall in the mid wet season. In addition, factor of weeding should be determined based on weed interference levels, weed species, amount of rainfall and mature plants (flowering and seed set) etc. Moreover, farmers should provide weeding when the flowers blooming and seed setting in order to reduce the seed bank of weed in soil. The findings of this study demand further investigation on *S. hamata* at the 4th to 5th year of its culture. Therefore, the consequence of seed bank of *S. hamata* and weed in soil including the population of mature plants should be studied elaborately.