

Chapter VII Conclusions and Recommendations

From the result of field survey and results obtained from data analysis, this section will be focused on the following conclusions:

Maize is the first upland crop and plays the most important role in cropping system in the rainfed upland area of Son La province in terms of food security and household income contribution. The most problems of maize production in this region were low yield and instable across regions. Because of traditional techniques and yielding constraints has affected maize production in growing season.

The result of field survey showed that the low and instable yield were result of limited factors, which associated in maize production in Son La province. They were drought, erosion, low soil fertility, old varieties, inappropriate use of fertilizer, pest and disease damage, and weed competition as well as farmer lack of technology were considered as attributing to major yielding constraints that have strongly affected the annual maize productivity.

Farmer group discussion and Analytical Hierarchy Process have defined the relative important of each yielding constraint factor that involved in maize production by weight value. The analysis result showed that environmental stresses, such as soil erosion and drought were the most serious problems to maize yield and they were assigned with the highest weight values. The second group factors consisted of old varieties, low soil fertility, and shortage and imbalance in fertilizers use. The last groups of yielding constraints consisted of pest and disease, weed competition and farmer lack of technology that had less affected the maize yield and assigned with the lowest weight values.

Evaluation of the yield loss due to yielding constraints by quantitative assessment has indicated that the coefficients of nitrogen, phosphorous and potassium were positive values; it confirmed that fertilizers application for maize were underused in

farmers' practice. The coefficients of the other yielding constraints get negative values; it means that these yielding constraints affect the maize yield, if it occurs at the maize field.

Comparison with the unaffected farms, the average percentage of yield loss due to constraints indicated that the highest effect is from the soil erosion at 25 percent, followed by the old varieties 23.6 percent, the low soil fertility 20.4 percent, shortage and imbalance of fertilizers from 0-16.2 percent, the pest and disease 8.1 percent, weed competition 5.7 percent and farmers' lack of techniques 2.3 percent of total yield.

As the above mentioned, the suggested solutions for improve maize productivity were given out in the PRA workshop, which are considered as the appropriate solutions to reduce the effect of these yielding constraints to maize productivity in the rainfed area. Those suggested solutions were based on the feasibility of local conditions, farmers' requirement as well as the ability of the farmers in real production.

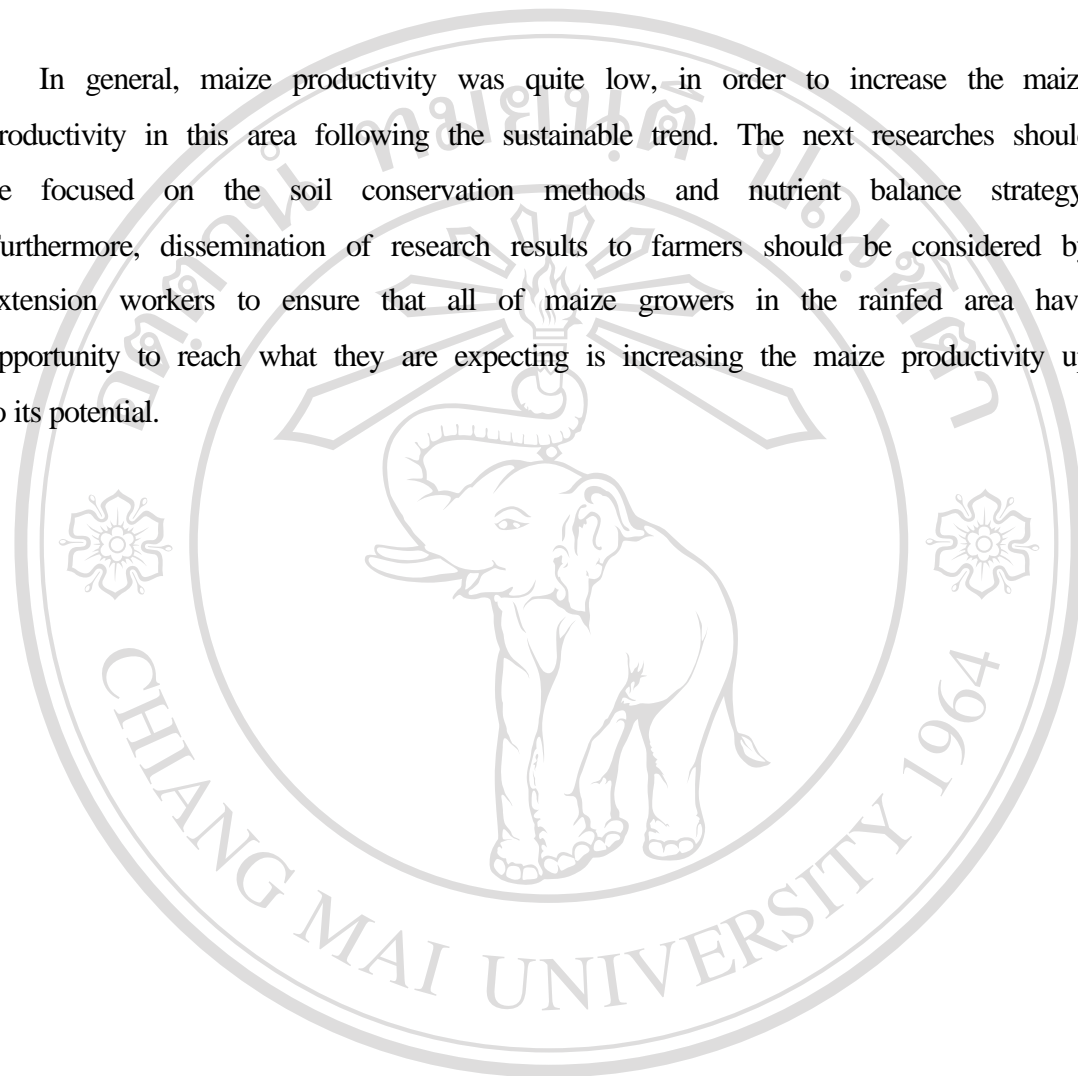
Recommendations

From these value findings it is worth making relevant recommendations as follows:

1. These yielding constraints affect maize productivity were identified in above. If maize growers want to increase the maize productivity higher and more sustainable in the future, they should pay more attention to maize production system and reduce the effect of these constraints in growing season.
2. To minimize these negative effects to maize productivity, it is imperative that these suggested solutions in above running in this area be tested and expanded to encompass as many compatible components as possible. The soil erosion control under alley cropping model and replacing local varieties and OPVs by hybrid varieties and fertilizers use should be pursued in greater magnitudes.

3. Due to time limitation, this study could not cover for the whole area and go further in the effected mechanism and specific level of each yielding constraint to maize yield so the above solutions have just highlighted, not yet applied in maize production in this areas.

In general, maize productivity was quite low, in order to increase the maize productivity in this area following the sustainable trend. The next researches should be focused on the soil conservation methods and nutrient balance strategy. Furthermore, dissemination of research results to farmers should be considered by extension workers to ensure that all of maize growers in the rainfed area have opportunity to reach what they are expecting is increasing the maize productivity up to its potential.



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