CHAPTER 5

CONCLUSIONS AND SUGGESTIONS

5.1 Conclusions

The research of the Agricultural Promotion to Reduce Corn Biomass Incineration in Mae Jaem District, Chiang Mai province had one major objective, to find a model of agricultural promotion that was suitable for encouraging farmers to reduce the burning corn biomass in Mae Jaem District, Chiang Mai Province. This research was an active participation research targeted to develop and test the agricultural promotion model to reduce corn biomass incineration in the targeted area. This research was both qualitative and quantitative.

The target population in this research included farmers who grew corn in Mae Jaem District, Chiang Mai Province. The researcher selected study areas in three districts including Mae Na Jon, Tha Pha and Chang Keng District. The active participation research started from arranging public meetings in three districts. In each district, the researcher invited three farmers from each village to participate in activities for each meeting. The researcher presented the agricultural promotion model and allowed the farmers to discuss the suitability of and propose guidelines for such practices. After that, the researcher asked for volunteers from the farmers to attend the test program for the agricultural promotion model to reduce corn biomass incineration. As a result, from the three public meetings, there were one hundred and twenty farmers who were interested in volunteering in the program. Before operating the test program in these three districts, the researcher arranged a focus group of nineteen representatives, consisting of corn farmers, in three sub-districts to study the feasibility and availability of the agricultural promotion model. One hundred and twenty farmers agreed to attend the program and the experimental research design was as follows:

O_1 X O_2

By O_1 is variable measure before treatment

X is treatment by operations of three steps such as:

Step 1 Operational Training

Step 2 Powdering Corn Biomass

Step 3 Exploiting Corn Biomass Powder to Replace Incineration

The researcher analyzed quantitative data by using descriptive statistics including frequency, percentages, mathematical medians, minimum and maximum scores and standard deviation testing. The differences of the variables were analyzed before and after operation by using presumptive statistics, for example, the Paired T-Test. Presumptive statistic path analysis would be used in testing availability of the agricultural promotion model to reduce corn biomass incineration, but for analyzing qualitative data, content analysis would be used.

The instruments used to collect data were a questionnaire and documents recording the quantity of corn biomass.

5.2 Suggestions for future works

5.2.1 Opinion

Conclusively, the experiment of using this agricultural promotion model to reduce corn biomass incineration found that it could be an instrument to encourage the farmers to reduce the burning of corn biomass and gain them return or benefits. Farms that utilize the ground corn biomass and exploit it as material for mushroom cultures, silage or manure, could reduce their cost of fertilizer or silage and could also earn added income from distributing mushroom cultures with corn biomass powder.

The research found that the farmers, who volunteered to attend the operational training, were interested in extending their new knowledge into real practice because they found it was not complicated and could be conducted in their households. However, the problem was that they needed assistance from the relevant sectors to provide the grinder in order to prepare the corn biomass powder so that they could follow instructions they gained from the training. Other instruments were needed, such as providing manure, which was limited, for the mixture of compost that was increasingly needed in Mae Jaem District. Hence, it should be provided from other areas so that it could be mixed in the compost to be sufficient for use. The farmers were more interested in raising cows after they finished the training. They learned about the guidelines to reduce the cost of raising cows and also how to adjust the formula of silage to feed an array of animals such as goats and sheep. The researcher suggested to the farmers that raising animals was a way to earn a good income and they could also benefit by their byproducts, such as the animal droppings to make manure. If the farmers were interested in establishing an animal raising group and operate as a cooperative such as Pon Yang Kham Cooperatives in Kalasin Province, it would be more beneficial because they would have strength in terms of production and marketing as a result of being a group and they would have more bargaining power. Besides

raising cows being a potential income source on top of growing corn, it could also lead to labor staying local. Thus, the farmers, who would be unemployed after the harvesting season, could have continual employment in the local area and not need to move out to be a laborer. Regarding making materials to culture mushrooms with the operational training, the farmers were very interested because the cultures could be produced at a household level and their children could help in production and it was not time consuming to harvest the agricultural products and use them as food or sell them as produce.

From such results, it could be said that the model of this research had the potential to meet the objectives of this study. The attention and needs of the participants in using biomass for utilization in these three formats was met. Therefore, with the support from the relevant sectors, as has been shown by the volunteer farmers, biomass could be completely used up and there would not be biomass left for burning that could lead to pollution and environmental issues

5.2.2 Suggestion

The researcher had a suggestion to study the guidelines for utilizing corn biomass, to increase management alternatives, and opportunities to gain more return. From the study information, it was found that there were also other channels for its use, such as flooring material in the chicken production industry by replacing rice hulls that were used to floor the coop or using it as flooring material in pig stys or cow farms to mitigate the problem of undesirable smells from methane gas or ammonia as a result of the animal droppings fermenting. This would strengthen the animals and farmers would gain manure from their droppings for cultivation. Other solutions included utilizing it as pellet energy, material for Ethanol or bio-fuel production such as Biogas, reduced sugar or Xylitol. A continuing study of production and management of biomass with the idea of increased gains and returns is needed for innovative ways

to increase the channels of corn biomass utilization and add value that could increase the income of farmers who were in the corn growing cycle.