I - INTRODUCTION

Seng Cu rice, a special product in the Northwestern region of Vietnam, provides high intrinsic value and its one of the main crops for poverty reduction and rural development. Lao Cai, a mountainous province, has various natural advantages for growing Seng Cu rice such as soil, climate, water resource and so on. However, Seng Cu rice production is facing with several challenges related to poor farming practices and input management in both upland and lowland areas.

This paper aims to analyze the determinants of the economic efficiency in rice production by 123 randomly selected farmers. The Cobb-Douglas Stochastic Frontier Model was employed to analyze the data, using the FRONTIER 4.1.

II - RESEARCH SITE

Figure 1: study area

III - METHODOLOGY

Figure 2: conceptual framework

Data collection: Secondary data: Historical data in statistical yearbook of Lao Cai Province and primary data was conducted to collect information about on endogenous characteristics of households, social – economic situation of household and farming practices for growing Seng Cu rice.

Data analysis methods: regression; comparison mean of quantities or ratio between upland and lowland areas.

The Stochastic Frontier Model incorporating inefficiency effects was employed to analyze the data, using the FRONTIER 4.1.

IV - RESULTS AND DISCUSSIONS

The biggest differences between lowland and upland areas is natural condition, including rainfall, monthly temperature (figure 3), that causes difference in seasonal calendar in Seng Cu rice production (figure 4).

Figure 3: Rainfall and temperature in selected regions of Lao Cai

Figure 4: Production cycle and cash costs in Seng Cu rice production of surveyed farmers

Table 3: Estimated coefficients of the SPF Model

Table 2: Summary statistics for different variables in the model

CONCLUSIONS AND RECOMMENDATIONS

Seng Cu rice production of household in lowland had much higher investment level than upland area. However its effectiveness was much lower in comparison with that of upland. It provide an empirical work for the inconsiderate argument about relationship between agricultural investment and effectiveness as well as traditional farming practices and extensive methods.

There are strongly effects of number of seeds and seeding source on technical efficiency in the area. So, official authorities in the field should increase number of seeds to high quality seeds providing to farmers. Besides, this farmers living in upland area have to follow the guideline of extension staff to have reasonable farming practices. It is not clear that level of pesticide and fertilizer use effect to output of rice.

Moreover these costs accounted for more than 45% of total cost for growing in lowland area. To increase effectiveness, these farmers should decrease chemical cost. Meanwhile level of education has no effect to productivity, years of experience has strong influence. According to household surveyed, the most difficulty in rice production is pest and water management which required farmer has enough experience.