

Potential Contribution of Bioenergy Crops for Rural Livelihoods in Southwest China

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Master Program

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This work was financially supported by the Eiselen Foundation Ulm.

Date: April 2009

Abstract

The rural region in Panzhihua is one of the poorest areas in China. Its soils are of low fertility, it is mountainous, and the climate is unfavorable because of the hot and dry weather. The local government plans to expand the arable land area by planting oil crops on waste land that has previously been unsuitable for food crops. The crop of choice, *Jatropha curcas*, can grow in low fertility soils and can tolerate drought. Its potential is now being realized to address many areas of interest: environmental quality, energy security, food security, agro-industry, and financial returns. In spite of these advantages it is unclear whether local farmers could benefit from intensively growing energy crops in terms of higher farm income. Therefore the objective of this study is using economic tools to assess the potential of this crop to contribute to farm incomes of small scale farmers in Panzhihua.

To reach this objective this study randomly selected 40 farm households in a village where this crop is currently grown and farmers are involved in growing it. Using both primary and secondary datasets this study analyzed the determinants of household farming activity selection in Lixin village, Panzhihua prefecture, Southwest China. Cost-Benefit Analysis was used to estimate the production cost and benefit for both *Jatropha* and other crops produced at farm level. Current impact from the *Jatropha* sector was also analyzed by the same method. A Linear Programming Model was built to simulate the impacts of the *Jatropha* sector's different development stages on farm households' economic well-being and production decisions. Then model validation work was implemented to check whether this model fits reality validly. Afterwards, some correction to the model was made to achieve a good model fit. The results of this research showed that by involving in the *Jatropha* sector, household economic well-being was and could be explicitly enhanced in the study village. Both research methods proved that as a supplement activity at farm level, the existence of the *Jatropha* sector can offer opportunities to significantly increase local farm households' income. However, these potential contributions are under various conditions.