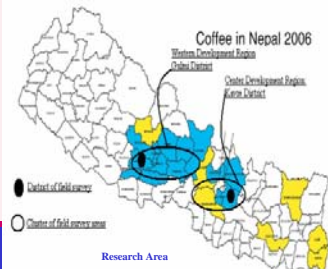


# The Impact of Coffee Production on Nepali Smallholders in the Value Chain

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## BACKGROUND

- Coffee farming is an important exported crop from Nepal with 7.3% share of country's total 15% agricultural export share.



- However, lack of research to identify and recommend upgrading technologies has been a major bottleneck to improve quality of Nepali coffee.

- The major objective of this research was to examine the impact of coffee production on smallholders' livelihood taking their integration into the value chain into account.

## COMPARATIVE STATISTICS

Variables	Total (N=120)	Certified (n=60)	Non-certified (n=60)	Test of significance <sup>a</sup>
Education (years)	6.3	7.3	5.2	2.67***
% of shade trees cover	57.2	50.7	63.8	-2.46**
Yield of coffee (quintal/ha)	24.4	20.7	27.8	-1.84*
Price of fresh coffee cherry (US \$/kg)	0.39	0.42	0.35	11.19***
Price of dry parchment (US \$/kg)	2.19	2.25	2.13	5.82***
Process (if sale dry parchment =1) [%]	33	25	40	-1.76*
Member (if farmer has membership on village level saving & credit cooperative =1) [%]	24	33	15	2.38**
Book (Farmer kept book about coffee activity =1) [%]	31	43	18	3.05***
Shocks (Farmer faced coffee production related shocks =1) [%]	47	72	22	6.29***
Service providers (available=1) [%]	83	92	73	6.98***

Note: \*\*\*Significant at 1%; \*\*Significant at 5%; \*Significant at 10% levels. <sup>a</sup>Continuous variable: t-test & Dummy variable: Chi2 test

## METHODOLOGY

- Two districts and six villages were selected purposively and random sampling in HH level.
- Village was the sampling frame based on altitudes and small-scale coffee producers.
- Semi-structured interviews were conducted with 120 small-scale farmers in 2008 in Nepal. In addition, six focus groups discussions with coffee producers and six expert interviews were conducted.
- Logit model was used to determine farmers' decision to adopt process upgrading.

Note: Group organic certified smallholders from Gulmi and non-certified ones from Kavre were selected in sampling framework.

## EMPIRICAL MODEL

Logit regression was used to investigate the determinants of the farmers' decision whether they adopt wet process upgrading of coffee or not. The logit transformation of the probability of adopting farm level wet process upgrading expressed as:

$$L_i = \ln \left[ \frac{P_i}{1 - P_i} \right] = Z_i = \alpha + \sum_{j=1}^n \beta_j \cdot x_j + \varepsilon_i$$

$Y_i = 1; P(Y_i = 1) = P_1$   
 $Y_i = 0; P(Y_i = 0) = 1 - P_1$   
 $P_1 = E(Y = 1/x)$

where,

$\beta_j$  = Parameters to be estimated

$X_i$  = Vector of independent variables (HH characteristics, marketing performance, production system & certification dummy).

$Y_i$  (Process) = a dichotomous dependent variable (1 if farmer sells dry parchment after wet processing, 0 otherwise)

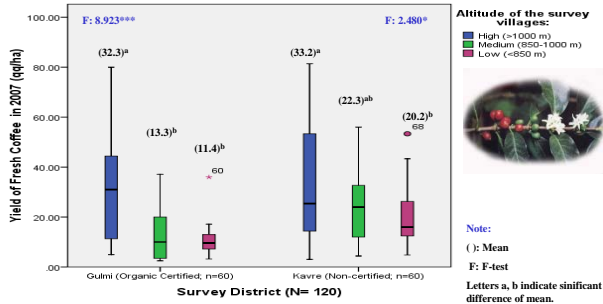
$L_i$  = Logit,  $\varepsilon_i$  = Error term in the model.

## Results on farmers' decision to adopt wet process upgrading of coffee at farm

Variables (N=120)	Coefficient	Robust S.E	dy/dx
Gender (male=1)	0.451	0.719	0.079
Education (years)	0.110*	0.060	0.019*
Adult number in HH	0.094	0.183	0.016
Production coffee (qq)	0.164	0.141	0.029
Book keeping (yes=1)	1.759**	0.878	0.356**
Access to credit (yes=1)	1.421**	0.587	0.266**
Trust (yes=1)	2.119***	0.527	0.410***
Training (yes=1)	1.196**	0.627	0.194**
Poor (< US \$ 1.25/p/d=1)	-0.441	0.636	0.076
Certified	-2.466***	0.653	-0.429***
Constant	-4.239***	0.716	

Log likelihood = -44.27; Wald test (10)=42.02\*\*\*; Pseudo R2 = 0.41; Area under ROC curve =0.89  
 Note: \*\*\*Significant at 1%; \*\*Significant at 5%; \*Significant at 10%. dy/dx= Marginal change in probability (after logit)

Relation between coffee yield and altitude in the study area



- Finding of the study shows that smallholders have little bargaining power and trust in trade due to asymmetric market information and inadequate support in farm level upgrading activities.
- Group Organic Certification seems as a catalyst to entry in the international markets; in addition it is costs effective with 6-20% price premium for certified smallholders.
- The study reveals that wet process upgrading is very profitable (49 to 76% more) as compared to dry processing and sale of fresh cherry among the small-scale coffee farmers.

## CONCLUSIONS & RECOMMENDATIONS

- Level of education, record keeping on coffee activity, access to credit, trust and training received for quality improvement play positive role on farmers' decision to adopt wet process upgrading at farm.
- Study recommended, investment should be made in product and process upgrading by improved production management through extension and research. Investment in wet processing should be done according to altitudes for consistent quality of Nepali coffee.

