

# Buffalo Production: A Prosperous Enterprise to Empower Women Farmers and to Sustain Subsistence Farming

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**Introduction:**  
Livestock is an indispensable component of the agricultural production system in Nepal, which contributes 31.5%, the second highest next to field crop to agriculture and 18% to national GDP. Of the farm animals, cattle, buffalo, sheep, goat, pigs and poultry are the major livestock species reared across different agro-ecological zones. However, Buffalo is of paramount importance amongst the livestock enterprise. In total, 71.5% of the households are having livestock and poultry birds.



**Objectives:**  
 • to analyze the socio-economic contribution of buffalo enterprise to household income  
 • to identify the determinants of buffalo farming  
 • to analyze the prospects of women empowerment

**Socio-economic contribution of Buffalo to national and household economy:**

- 67% of the total milk production
- 64% of the total meat production
- Besides, substantial amount of draft power, manure/ fertilizer to the crops, household cash income and hides and bones

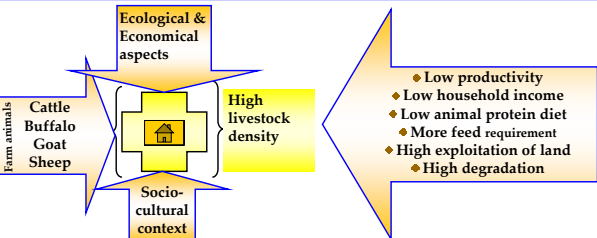
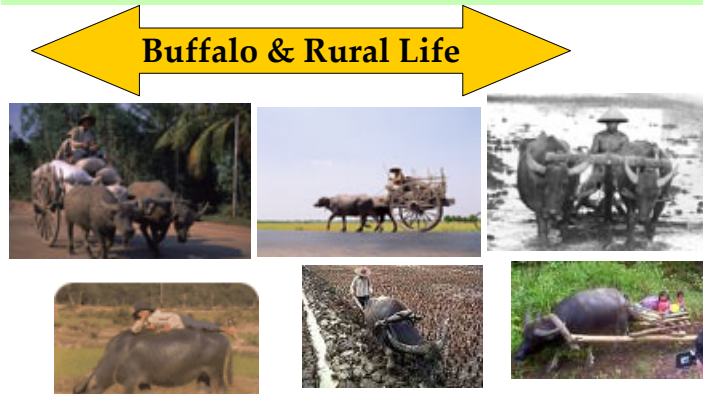


Figure 1: Graphical presentation of conceptual framework



## Buffalo & Rural Life

Determinants of buffalo farming

$$Y_i = \gamma_0 + \delta_j \sum (X_{ji}) + \alpha_n \sum (E_{ni}) + \beta_k \sum (H_{ki}) + \mu_i$$

Growth trend: population, milk and meat production

$$Gt = f(t) \rightarrow G(\ln y) = \alpha_0 + \beta_1 \sum_{i=1}^t T_i + \mu_i$$

Gt (lny)=Growth trend of buffalo population, milk and meat production over the years t, T<sub>i</sub>=time in year (1991-2004), α<sub>0</sub>=Intercept, β<sub>1</sub>=parameter to be estimated, μ<sub>i</sub>=error term

Y<sub>i</sub> = output (milk liter) for observation i, γ<sub>0</sub> = intercept, δ<sub>j</sub>, α<sub>n</sub> and β<sub>k</sub> = parameters to be estimated, X<sub>ji</sub> = vector of production inputs (roughages (Kgs), veterinary services (NRs), labor (man-days), concentrate (Kgs), breeding (NRs)), E<sub>ni</sub> = vector of socio-economic factors (farm size (ha), credit availability (binary), off-farm income (binary), member of farmer group (binary), H<sub>ki</sub> = vector of human capital and demographic factors (formal education (years), skill promoting trainings (binary), extension service (binary), experience (years), μ<sub>i</sub> = stochastic error term.

## Results and discussions:

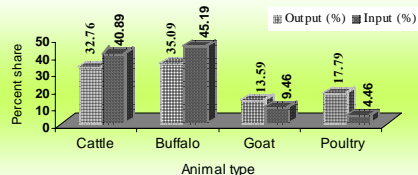


Figure 3: Inputs and outputs composition (%) of livestock enterprise by animal type

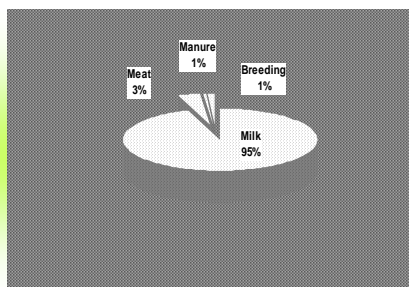


Figure 4: Share of products (%) to the total buffalo income

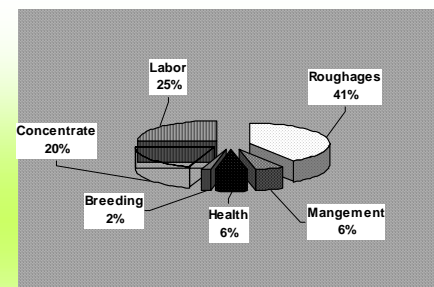


Figure 5: Sharing of inputs (%) to the total buffalo expenditure

Table 1: Growth trend of Buffalo population, milk and meat production (1991-04)

Variables	Intercept	Coefficient	Standard Error	t Statistics	R <sup>2</sup>
Population (No)	14.89193	0.01984***	0.00076	25.99	0.98
Milk production (No)	13.25732	0.02858***	0.00129	22.10	0.97
Meat production (Mt.)	11.41616	0.02863***	0.00120	23.84	0.97

\*\*\* indicates significant at 1% level

Table 2: Determinants of Buffalo farming

Variables	Coefficient	Standard-error
Constant	0.13749	0.098814
Roughage	0.16967***	0.020796
Labour	0.24152***	0.076061
Veterinary services	0.32467***	0.055014
Farm size	0.29200**	0.16324
Credit	0.47354**	0.023427
Training	0.10489***	0.23313
Experience	0.13735*	0.084928
Education	0.98787***	0.17462
Group member	0.27275**	0.12546
LR test	53.672***	
Observations (treatment group)	60	

\*\*\*, \*\*, and \* indicates significant at 1% level, 5% and 10% level respectively



## Women empowerment:

- Women involvement in milking, products processing, shed cleaning (56%)
- Fetching fodder, forage, cereal by-products (60%)

## Challenges:

- Capacity building (technology transfer)
- Women access to household income
- Women's participation in household decisionmaking

## Future Prospects:

- Its increasing contribution to the national and household economy provides wide range of possibilities for improving the lives of 31% rural population living under the poverty line.
- Earning foreign exchange through exporting ghee, hides and skin to India and other countries.
- The average 414 and 850 litres milk production of a native cow and buffalo per lactation and average per capita annual availability of 48 litres milk, and 8.4 kg meat, reveal potential possibility of extending buffalo farming in future whereby women involvement and their empowerment increases automatically.

## Policy Recommendations:

- Give top priority on fodder plantation and forage crops cultivation program to increase the access to forage and
- Focus on capacity building approach that enhances farmers' competency and problem solving capacity in selecting and intensifying buffalo enterprise.