

Animal Production Systems in the Kaski district of Nepal

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Introduction

Agriculture of developing countries is predominately focused on small farms, which hold great potential for increasing prosperity of communities. Such farms, however, are usually resource-limited and farming and livestock husbandry occur in the context of a hand-to-mouth subsistence living. Implementation of solutions to improve productivity need to take into account local situations and available resources, while not imposing prohibitive costs on farmers.

Nepal is among the poorest and least developed countries in the world, with almost ¼ of its population living below the poverty line. Agriculture is the mainstay of the economy, with the majority of producers being from small farms with low-producing animals. We surveyed 85 farms in the rural Kaski district with the goal of describing animal production systems and determining areas where effective interventions can be made to increase animal health and productivity.

Methods

85 randomly selected farms from the Kaski district were visited by the research team consisting of a Nepali veterinarian and 3 students from the University of Pennsylvania, School of Veterinary Medicine. Farmers were interviewed with a questionnaire that was developed by the research team and pre-tested. Animals were evaluated for body condition and their weights determined with weight-tapes. Samples of forage and concentrates were taken from a sub-sample of farms and analyzed for energy, protein, soluble fibers and minerals contents. CPM Dairy was used to determine production levels obtainable from rations fed to animals with local feeds.

Results

Demographics:

Animals included buffaloes, goats, and cows. 13% of farms had all three species, while 50% had goats and buffaloes.

	Total number/farm	# pre-pubertal	#pregnant	#producing	Breed
Buffalo	2.83	1.05	1.19	0.70	84% local/parkote 16% Murrah cross
Cattle	2.76	0.63	0.47	0.74	95% local breed 5% Jersey cross
Goats	5.17	2.1	1.2	N/A	10% Jamanapari x 88% Local (khari/sinhal) 1% Sanen x Austr. Boer

Reproduction

	Age of 1 st breeding, mean(SD)	Average # of breeding attempts, mean(SD)	Dry period (months), mean(SD)	Calving/Kidding interval (months), mean(SD)	parturition number, mean(SD)
Buffalo	3.2 years (0.41)	1.6 (0.53)	3.4 (1.8)	12.9 (2.1)	12.1 (2.5)
Cows	3.1 years (.54)	1.6 (0.55)	4.4 (1.5)	13.4 (4.0)	11.0 (2.3)
Goats	5.5 months (1.6)	1.6 (0.54)	1.6 (0.69)	6.4 (0.69)	10.9 (1.7)

Housing and husbandry

- Housing generally consisted of open stalls (Fig 1).
- 44% of water buffalo, 92% of cattle and 50% of goats had access to pastures, usually for a minimum of 8 hours a day.
- Anthelmintics were administered regularly, while vaccination was mostly done on an as-needed basis
- Weaning and artificial insemination were not performed.
- 42% of water buffalo farmers sold milk, 8.3% of cattle farmers sold milk and 100% of goat famers sold goats for meat.

Nutrition

- 78% of buffalo, 67% of cattle and 37% of goats were fed concentrates. (wheat bran, rice bran, corn flour, millet flour) (Fig 2c).
- Vitamin and mineral supplementation was infrequent
- Most farms made straw (Fig 2b)
- Feed costs averaged \$45/buffalo/year, \$15/cow/yr, \$8/goat/year.
- Forage and concentrate nutritional content was insufficient to support increased production.

Conclusions

- Farms are small and often self-sufficient producers.
- Increased income could be generated from increasing and selling more animal products.
- Nutrition is likely the limiting factor for increasing production.
- Community Animal Health Workers have a significant role to play in improving animal health in rural areas underserved by veterinarians.



Fig 1a: Open goat stalls



Fig 1b: Water buffalo stalls



Fig 1c: Raised goat housing



Fig. 2a: Fresh greens



Fig 2b: Straw-making

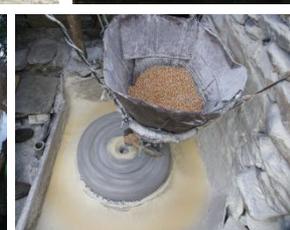


Fig 2c: Corn grinding