

Reproduction and Economic Potential of *Kacang* Goats in East Nusa Tenggara – Indonesia

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Introduction

The growth of goats in the Eastern part of Indonesia is relatively low and reproduction potential is not fully exploited by small farmers. In the villages, goats complement other parts of the agricultural system, e.g., they consumed crop residues and weeds, added stability to farmers' income and consumption, provided liquidity, had high value for ceremonies and were a store of wealth, family security and insurance similar to the results of other studies (Knipscheer, et.al., 1987; Eik, 2008). Large proportion of meat in the future is expected to come from the small ruminant, although the economic value of goats is still considered low. There is little published information on goat farming systems in which they are kept, and on their role, productivity, reproduction, including economic potential, limitations and opportunities for development.

Materials and Methods

One year-long study of village goat rearing was conducted in East Nusa Tenggara (NTT) regions, followed by an in-depth monitoring study, involving 26 goat rearers out of 120 selected farmers from the survey study. The selected farmers were chosen randomly within the three locations representing 3 agricultural system, i.e. Rice and Mixed Garden (RMG), Garden and Grazing (GG) and Dry field, Grazing and Forest (DGF) areas. They were interviewed, based on written questionnaires, direct observations made and data recorded on reproduction, mortality, sales, health problems, economic variables and management practices. Population change during the study period was recorded this was estimated from the number of breeding females in the flock, the number of kiddings, the number of animals entering the flock, kid mortality and off take rates over the period.

Results and Discussions

The overall results of reproduction characteristics (Table 1) showed the low performance of goats at the three sites. The no of kiddings was 1.5 kids/doe/year.

Table 1. Reproductive performance and kid mortality of goats at three village sites

Attribute	RMG			GG			DGF		
	N	Mean	SE	N	Mean	SE	N	Mean	SE
Age at 1st kidding (m)	26	13.08	0.34	16	14.75	0.48	16	13.06	0.41

Kiddings/year	26	1.48	0.07	16	1.31	0.09	15	1.40	0.09
Kids (no/doe/year)	26	1.44	0.09	16	1.47	0.10	15	1.53	0.08
Kid mortality (%)	10	29.00	0.49	13	18.00	0.35	17	16.00	0.48
Age at culling (male,y)	10	5.50	0.31	3	5.00	0.58	10	5.80	0.33
Age at culling (female,y)	15	5.53	0.26	4	5.64	0.40	11	5.27	0.14

N = Number of farmers; m = month; y = year

Averagely, the ratios of males to females was 1:7, suggested adequate opportunities for does to be mate, as bucks and does generally ran together all year round. The average age of females at first kidding was about 13.6 months, the no of kids produced was 1.48/doe/year. Overall kid mortality from was high (21%), mostly caused by malnutrition after birth, and diseases. An effective disease control and health management are recommended and need to be done regularly, in reducing kid mortality and improved reproduction rate.

Most goat owners sold bucks or wethers and does before 3 years of age, only few farmers sold bucks and does at 5-6 years old, determined by size and/or condition. Assuming each farmer sold 8% kids, 8% growers and 4% finishers, thus, the average gross income from goats was US\$ 3.518/farmer/year. The average gross capital values of goats held in the villages was US\$ 23.202/year, thus, the gross return on capital received from goats was 15%. Middle-men or local traders who buy goats from farmers at the time of low prices and then resell them to consumers when prices are higher (e.g. Ramadan) have an important role in goat marketing in these villages. According to Eik (1987), village goats as had important economic contribution to household welfare and food security. Farmers stated that costs of goat rearing were very low, as only family labour and local feed and material were utilized.

Table 2. Capital invested in goats at the three sites (RMG, GG and DGF).

Age structure of goats	Average stock held	Price/head (Rp)	Capital (Rp)
Starters	306 (26%)	150.000 (US\$15.54)	45.900.000 (US\$.4.756)
Growers	448 (38%)	250.000 (US\$.25.90)	112.000.000 (US\$.11.606)
Finishers	165 (14%)	400.000 (US\$.41.45)	66.000.000 (US\$. 6.839)
Breeding stock	142 (12%)	Not sold	
Replacement stock	119 (10%)	Not sold	-
Total no. of goats	1.180 heads		

Conclusion

Factors affecting the low reproduction performance of local kacang goats in the village sites, including limited genetic potential; inefficiency in breeding systems, ineffective feeding and health management; and poor marketing strategies. Economically, goats may have

significance contribution to the cash income received by village farmers. However, lack of capital and credit facilities; and unavailability of reliable goat markets may have contribution to farmers income and limit the benefit to village farmers from goat enterprises.

To increase inputs to and income from goat enterprises, provision of improved management on breeding, feeding and health management; provision of credit facilities for farmers to purchase good breeding stock, improvement of veterinary services and establishment of reliable markets available in villages are considered essential.

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