



## Cattle Feeding and Management Practices of Small-holder Farmers in Kampong Cham Province, Cambodia

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Received 31 December 2009      Accepted 5 March 2010

**Abstract** Almost all cattle in Cambodia are produced by small-holder farmers. The cattle are raised in an extensive way for draught power and wealth accumulation purposes. Feed availability is a major challenge for farmers associated with poor management which limits cattle productivity. This study reports a survey which was conducted to describe the cattle feeding and management practices of small-scale farmers in Cambodia. Sixty farmers raising cattle in Kang Meas and Tbong Khmum districts in Kampong Cham Province were randomly selected for an interview in 2008. On average the interviewed farmers raised 4-5 cattle per household. Most of them had cows aged older than 3 years which were mainly kept for breeding. More than 80% of cattle in Kang Meas were crossbred, but about 40% of cattle in Tbong Khmum were local breed. Very few farmers practiced weaning and none timed the date for their cows to calve. However, most of them selected a bull in their village for mating to cows. No artificial insemination was practiced in the village. The majority of farmers vaccinated their cattle to prevent the Hemorrhagic Septicemia (HS) while very few de-wormed their cattle. Cattle feed was mainly based on grazing in dry and rainy seasons. During the flooding season farmers in both districts relied on cut-and-carry native grasses and crop residues. Lastly, 60-70% of farmers sold cattle while only 10-20% bought cattle during the last year. In conclusion, cattle management by small-holder farmers was assessed as very low in terms of management and feeding. Farmers still raise their cattle in the traditional way with low health care intervention. Better housing of cattle with proper health care and improved feeding systems are recommended to farmers as ways to improve cattle production.

**Keywords:** Cattle feeding, management, small-holder farmers, production, Cambodia

### INTRODUCTION

In Cambodia, livestock accounts for 20.9% of agricultural GDP and contributes 7.6% to overall GDP (FAO, 2005). Most livestock, including cattle, poultry and pigs are produced by small-holder farmers. According to Ballard and Thun (2007) small-scale farms produce nearly 85% of total livestock and meat in the country. Moreover, small-scale producers own 75% of the pig population, 85% of poultry and nearly all cattle and buffalo. As most Cambodian people are engaged in crop production, cattle are mainly used for draught power in the household.

Cattle are raised in an extensive way in small-holder production systems in Cambodia and there are several breeds of cattle. Native yellow cattle are the most common breed while other major breeds are Haryana and Brahman (Harding et al., 2007). There is not proper genetic improvement program as the natural breeding is widely practiced by farmers. Then the feeding systems for cattle are characterized by the use of a wide diversity of feed resource. These are based largely on the use of crop residues, forages and other resources. Rice straw and other crop residues including grasses, weeds and shrubs are the dominant feedstuffs.

Harding et al (2007) reported that there are two basic systems of cattle production in Cambodia, but each has the same constraint. In lowland areas, the land is dominated by rice which creates significant constraints for feeding cattle. There is more land available in upland areas; however, most of this land is unavailable for cattle production because the government has conceded it to private companies. There is a relationship between the labor constraint faced by small-holders and the availability of grazing land. The severity of feed shortage varies between regions, but poor nutrition is a common problem. Poor nutrition also contributes to a higher incidence of cattle diseases and parasites. The major diseases that affect cattle and buffalo in Cambodia are HS, Foot and Mouth Disease (FMD) and blackleg (MAFF, 2006). Other major health problems experienced are parasites, with liver fluke being the major internal parasite (Soun et al., 2006) and ticks and flies the major external parasites. Animal health is recognized to be the source of production losses such as low weight gain, draught performance, fertility and lactation (Copeman and Copland, 2008).

Kampong Cham province accounts for 13% of cattle population of the country and has great potential for cattle development with small-holder farmers. In 2003, the use of forage fodder banks was introduced by CIAT through the Livelihood and Livestock Systems Project in this province. To improve cattle production of small-holder farmers in Cambodia, the project “Improved Feeding Systems for More Efficient Beef Cattle Production in Cambodia”, which is funded by the Australian Center for International Agriculture Research (ACIAR), is being carried out from 2008 to 2011. The research reported in this paper is a baseline study of the above project with the aim of describing the cattle feeding and management practices of small-holder farmers in Kampong Cham Province.

## **METHODOLOGY**

Two districts in Kampong Cham, Kang Meas and Tbong Khmum, were selected for this study as they are the target area of the project. Geographically, these districts are different with Kang Meas being a lowland area along the Mekong River receiving flooding every year while Tbong Khmum is a high land area. Thmey Kor village located in Roka Koy commune in Kang Meas district was chosen as research site 1 and Chroy Ko village located in Chiro Pi commune in Tbong Khmum district as research site 2. The stratified random sampling method was used for the sample selection for an interview. First, a list of all households of each survey site was assembled with the help of the chief of village, showing which households raised cattle and which households have planted forages. Sixty farmers raising cattle (30 from each research site) were randomly selected for the interview using a semi-structured questionnaire. The questionnaire was designed to understand cattle herd size and structure, husbandry practices, feed management and cattle buying and selling practices. All data from the survey, both qualitative and quantitative data, were stored in Windows Excel and analyzed using SPSS version 13.0.

## **RESULTS AND DISCUSSION**

### **General characteristics of cattle production in studied areas**

Large scale cattle production was not typical in the studied areas. Farmers kept a small number of cattle as they did not have enough capital to invest more in cattle production. About 60% of farmers in both districts raised their own cattle, but 40% also raised cattle for other rich farmers by

sharing the returns. Cattle production contributed about the same proportion to household income (about 20%) in both studied sites, even though the income from crop production was different.

Most farmers in the study areas kept their cattle under the house during the night, with or without mosquito nets. The cattle were not kept under the house during the day; they may be tied under a tree or kept in the surrounding field, although this provides no shade to cattle. Cattle are grazed in the field when there are no crops. Farmers also spent a lot of time cutting and carrying native grasses or crop residues to feed their cattle. They rated the lack of feed and disease as the most challenging factors in cattle production. The cows had low productivity because the inter-calving was too long while growing cattle had low growth rate.

**Cattle herd size structure**

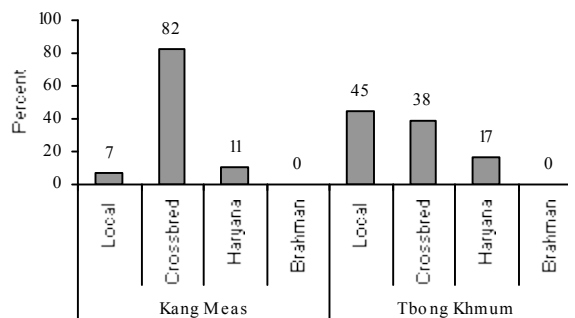
The percentage of the households raising different types of cattle and average number of cattle per household are shown in Table 1. Farmers in both studied sites raised on average 4-5 cattle per household. Most households (more than 80%) had cows older than 3 years, but the average number of cows was higher (P=0.042) in Tbong Khmum (2.33) than in Kang Meas (1.57). However, bulls were more important for farmers in Kang Meas (43%) than in Tbong Khmum (3%). The number of bulls per household was significantly higher (P=0.000) in Kang Meas (0.97) than in Tbong Khmum (0.07). Furthermore, around a half of farmers in both sites raised young bulls and heifers in their farm, with more heifers than bulls. Only one third of farmers in both sites had male or female calves in their household.

**Table 1 Percentage of farmers raising different type of cattle and average number per household**

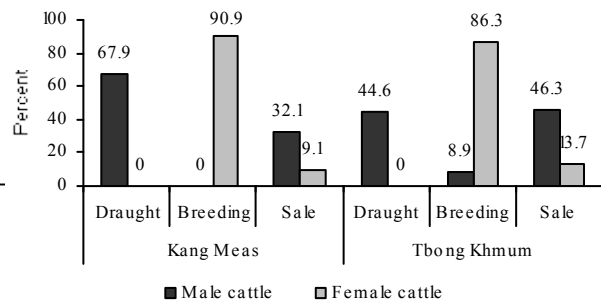
Types of cattle	Kang Meas		Tbong Khmum		P-value
	Percent	Mean	Percent	Mean	
Bulls >3 years	43	0.97	3	0.07	0.000
Young Bulls 0.5-3 years	37	0.43	50	0.8	0.125
Male Calves 0-0.5 years	13	0.17	37	0.47	0.062
Cows >3 years	80	1.57	87	2.33	0.042
Heifer 0.5-3 years	43	0.7	57	1.27	0.178
Female Calves 0-0.5 years	20	0.23	33	0.38	0.297
Total	-	4.3	-	5.3	0.230

**Breeds of cattle and production purpose**

Fig. 1 shows that most farmers in Kang Meas (82%) had crossbred cattle in their farm while very few raised local or Haryana cattle. However, local cattle were the most common for farmers in Tbong Khmum (45%) followed by crossbred and Haryana. No farmers in the studied area had Brahman cattle.



**Fig. 2 Percentage of farmers keeping different cattle breeds**



**Fig. 1 Percentage of purpose of cattle production by sex of cattle**