Marketing practices of smallholder beef cattle producers in East Java[1]

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ABSTRACT: We describe and analyse the marketing practices of cow-calf producers in lowland and upland sites in East Java, based on a questionnaire survey of 184 farmers and 30 cattle traders. Information was sought on types of cattle sold, the point of sale, reasons for selling, and the price of cattle sold. Most of the farmers in lowland site sold calves (male and female in equal numbers), while upland farmers sold calves, young cattle, and adults (with a higher proportion of females). The main reason for selling was to meet the farm-household's immediate consumption needs; a secondary reason was to acquire durable assets for the household. Most of the cattle were sold for cash to village traders, who in turn mostly sold in the sub-district market-place. Some farmers used a regular trader while others chose a trader based on availability and price. There was no significant difference in the price paid by traders coming from different locations as all purchases were at the farm-gate. Crossbreed animals obtained a higher price than Ongole Cross (PO), and male cattle obtained a higher price than female cattle. There were no price differences between lowland and upland sites, indicating an efficient and well-integrated regional market.

Key words: marketing chain, lowlands, uplands, farming systems, village traders

INTRODUCTION

Beef consumption in Indonesia has increased at 4.2% during the period of 2005-2009, from 1.08 to 1.18 kg/capita/year. Local production of beef, though also growing rapidly at 3.8%, from 271,400 tons in 2005 to 323,600 tons in 2009, is falling behind beef consumption, which is projected to reach 398,300 tons in 2010-2014 (Ditjen Peternakan 2009, 2010). To meet consumption needs, the Government of Indonesia has allowed the importation of beef cattle, which has been estimated to reach 570,100 head per year in 2008 (Ditjen Peternakan, 2009). The Meat and Livestock Association (2010) reported that the importation of live cattle from Australia had reached 768,133 head in 2009, a 10% increase on 2008 and the highest since 2002. Indonesia remains Australia's largest market, representing 81% of Australia's live cattle trade.

The population of beef cattle in Indonesia was estimated to be about 12 million head in 2009, with over a quarter of that population (about 26.9%) located in the Province of East Java (Ditjen Peternakan, 2009). The Ongole Cross (PO) has traditionally been the most common breed in East Java but is now second to the Limousin-PO cross due to the artificial insemination program implemented by the Provincial Government. Other, less common breeds include Madura, Simmental, Brahman, and other local breeds. There is a diversity of small-scale cattle systems in East Java. While in some cases the land, labour, livestock, and feed sources are all combined within a single household, in others the ownership and management of these production inputs are dispersed among various actors. Many farmers in East Java keep cattle for draught power and as a form of savings to be sold when cash is needed. Others in more intensive systems focus on producing and selling calves. There are also small- to medium-scale fattening operations and commercial feedlots in East Java which take in feeder cattle to be fattened.

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Cattle are moved in large numbers from producing to consuming regions in Indonesia, and in the process are traded within and between districts, provinces, and islands. Deblitz *et al.* (2010) reported that East Java is a transit place for beef cattle before coming to Jakarta – the prime end-market for beef cattle traded from other provinces. The actors involved in this movement are smallholder breeders, small-and medium-scale cattle fatteners, and cattle traders. The major marketing channels in East Java start with the cow-calf smallholders who supply calves and young cattle to traders, fatteners, or directly to cattle marketplaces. Village traders, inter-district traders, and inter-province traders gather in cattle marketplaces. Cattle are transported from there to beef wholesalers, retailers (meat shops, wet markets, or supermarkets), and ultimately to beef consumers (Hadi *et al.*, 2002). While the broad outlines of this supply network are known, there remain important questions about the details of each stage, including the types of cattle sold by producers, the prices received, and the subsequent geographic movement through growing and fattening operations.

In this paper we describe and analyse the marketing practices of cow-calf producers at two sites in East Java as the first stage of a study to trace the marketing network from producers to consumers. The paper focuses on two contrasting production systems – a more intensive lowland system in the adjacent districts of Pasuruan and Probolinggo, and a less intensive upland system in Malang District. These are the sites of an interdisciplinary, village-based research project to improve the reproductive performance of cows and the performance of fattening cattle in low input systems of Indonesia. An understanding of the marketing arrangements and constraints affecting these systems will be an important aspect of this research.

MATERIALS AND METHODS

A survey was conducted from March to July 2010. Primary data were gathered through single-visit interviews with smallholder cattle producers and cattle traders using a structured questionnaire and relying largely on respondent recall. In the lowland site, Pasuruan-Probolinggo, 76 producers from three adjacent villages were purposively selected, and in the upland site, Malang, 108 producers from the one village were selected. Items of data obtained included numbers and types of cattle sold; location and type of buyer; reasons for selling; and price. In addition, a brief questionnaire survey was undertaken of 30 cattle traders from both sites.

RESULTS AND DISCUSSION

Characteristics of Smallholder Cattle Producers

On average, farmers were aged in their mid- to late-forties (husband) or around 40 (wife), had 4-5 years of elementary schooling, had about 20 years of farming and cattle experience, and belonged to households of 4-5 members. There were no obvious differences between lowland and upland sites in these characteristics, including experience with livestock. However, in the lowland site about 28% of respondents listed farm and/or non-farm wage work as their main occupation, indicating limited access to land for farming, whereas in the upland site almost all were “own-account” farmers.

Lowland farmers managed about 0.4 ha, evenly divided between paddy fields and dryland fields, whereas upland farmers averaged 0.7 ha, most of which (94%) was dry land. Paddy fields in the lowland site were mostly used to produce three crops per year. The main wet season crop was rice (70% of households) but this was frequently followed by one or two crops of maize (65%), with some soybean production as well. Few farmers in the upland site had paddy fields. The dominant cropping pattern in dryland fields, especially in the upland site (58%), was rice-maize-maize. Hence rice straw and maize stover were important sources of feed in both sites.

On average, lowland farmers had 3.8 cattle and upland farmers 2.9 cattle. In both sites, most farmers had between 2 and 4 cattle. The breakdown of the herd was as shown in Table 1. There was little difference between sites, except that the lowland site averaged of 60% more calves. Almost all of lowland farmers produced calves (92%), with only a small number rearing adults, whereas only 18% of upland farmers specialized in calf production, most rearing mainly or exclusively adult cattle

(82%). There were no fattening operations in either site. Only a minority of households in both sites (26% in lowland, 11% in upland) used cattle for draught.

Table 1. Number of cattle per household by age of cattle

Age of cattle	Lowland site (head)	Upland site (head)
No. calves	1.3	0.8
No. young (1-2 yrs)	0.5	0.6
No. adults (>2 yrs)	2.0	1.5
Total	3.8	2.9

Numbers and Types of Cattle Sold

It is notable that almost half of the respondents in the upland site did not sell any cattle in the previous year, whereas only a quarter of those in the more intensive lowland site were in this category. There was a clear difference between the lowland and upland sites in the age profile of cattle sold (Table 2). Just over half of the producers in the lowland site, or 70% of those who sold cattle in the previous year, sold only calves, whereas in the upland site, most producers sold young cattle (30% of those who sold) and adults (40% of those who sold).

Table 2. Age of cattle sold by farmers in 2009

	Percentage of farmers, %	
Age of cattle	Lowland site (n = 76)	Upland site (n = 108)
Calves	51.3	11.1
Young cattle (1-2 years)	2.6	15.7
Adults (> 2 years)	5.3	21.3
Calves, young cattle, adults	5.3	0.9
Calves, adults	7.9	0.9
Calves, young cattle	1.3	0.0
Young cattle, adults	0.0	2.8
Total selling cattle	73.7	52.8
No cattle sold	26.3	47.2
Total	100.0	100.0

Table 3. Numbers of cattle sold by age and sex

	Lowland site		Upland site	
Type of cattle	No. of cattle	% of those sold	No. of cattle	% of those sold
Calves				
- Male	30	36.6	5	7.5
- Female	31	37.8	12	17.9
- Total	61	74.4	17	25.4
Young cattle (1-2 years)				
- Male	3	3.7	15	22.4
- Female	5	6.1	8	11.9
- Total	8	9.8	23	34.3
Adults (> 2 years)				
- Male	4	4.9	13	19.4
- Female	9	11.0	14	20.9
- Total	13	15.9	27	40.3
Total cattle sold	82	100.0	67	100.0

Correspondingly, in the lowland site the number of cattle sold averaged 1.08 head per respondent, and in the upland site, 0.62 head per respondent. For those who sold cattle, the averages were 1.46 and

1.18 head/respondent, respectively. The different pattern is reflected in the numbers of cattle sold (Table 3). Calves accounted for 74% of cattle sold in the lowland site, with males and females in equal numbers, but only 25% in the upland site, with a predominance of females.

Table 4 shows the reasons given for selling cattle in the past year. For 95% of those who sold cattle in the lowland site, and 75% in the upland site, the reason was to generate household income to meet current farm-household needs, such as repaying consumption credit and buying production inputs (seed, fertilizer), or secondary needs, such as school fees, health costs, and motorcycles. That is, cattle production was a regular source of income for the household. In a small number of cases the sale of cattle was to acquire an asset (land, house) or pay for a major event. Hadi *et al.* (2002) report that the main reason for selling cattle in Indonesia, generally was to pay for major outlays such as wedding ceremonies, school fees, and crop farming. Hermansyah and Mastur (2008) report that farmers in West Nusa Tenggara tend to sell and slaughter cattle when they are sick.

Table 4. Reasons given by respondents for selling cattle

Reasons for selling	Lowland site, % (n= 76)	Upland site, % (n= 108)
Animal infertile	2.6	0.9
Animal injured	0	2.8
To pay for current family needs	43.4	33.3
To pay for secondary needs	26.3	6.5
To buy land, house; pay for wedding	1.3	9.3
Not applicable (no cattle sold)	26.3	47.2
Total	100.0	100.0

Market Channels

Cattle were almost all sold in the village to local traders rather than being transported to a marketplace by the producer. In the upland site, 10% of respondents sold cattle to other farmers in the village, presumably so they could build up their own herds. In most cases these traders were based in the same village, though some were from elsewhere in the sub-district (Table 5). Almost all of these traders could be classified as "village collectors". Fauzi and Djajanegara (2004) reported 10 chains of actors involved in the marketing beef cattle in Garut District, West Java; most of the cattle in this study were sold to local traders.

Table 5. Types of cattle buyers used by farmers

Type of buyer	Percentage of farmers (%)		
	Lowland site (n=76)	Upland site (n=108)	Combined (n=184)
Other farmer	-	10.2	6.0
Village trader	56.6	32.4	42.4
Sub-district trader	10.5	8.3	9.2
District trader	3.9	-	1.6
Butcher	-	1.9	1.1
Total sold in village	71.1	52.8	60.3
Sold in marketplace	2.6	-	1.1
No cattle sold	26.3	47.2	38.6
Total	100.0	100.0	100.0

Interviews were conducted with 30 local cattle traders in Pasuruan, Probolinggo, and Malang. On average, traders were aged 45 years, had 6 years' education (i.e., elementary school), and had 14 years' experience (over half their adult lives) in cattle trading. In most cases (87%) this was their primary occupation. They were a similar age to the farmers and had similar length of experience with

cattle, but had somewhat more education (6 years on average). Household size averaged 3.7, somewhat smaller than the average for the cattle producers.

Most of the traders surveyed (53%) were categorized as village traders, 37% were sub-district traders, 7% were both village and sub-district traders, and only 3% was a butcher. (This profile mirrored that reported by the farmers.) All traders bought and sold all types of cattle (calves, young cattle, and adults) each 81% and 82% respectively for village and sub-district traders. Most (77%) collected cattle from farmers in the village and all sold them in the sub-district marketplace. In East Java, the livestock marketplaces are opened on the local market day. There are five local market days (*pon, legi, wage, kliwon, and pahing*) and most markets are open twice weekly.

In the lowland site about half the respondents sold to one regular trader, whereas in the upland site only a third did. Others varied their trader according to the best price they could receive or their assessment of the trustworthiness of the trader (Table 6). Almost all respondents who sold cattle were paid immediately in cash rather than by instalments or on credit (Table 6).

Table 6. Characteristics of cattle transactions

Indicator	Lowland site		Upland site	
	No. of respondents	Percentage, %	No. of respondents	Percentage, %
Sold to regular trader				
Yes	29	38.2	20	18.5
No	28	36.8	37	34.3
na*	19	25.0	51	47.2
Total	76	100.0	108	100.0
Transaction				
Cash	54	71.1	56	51.9
Instalments	2	2.6	0	0
Credit	0	0.0	1	0.9
na*	20	26.3	51	47.2
Total	76	100.0	108	100.0

*na – no answer or not applicable

Farm-Gate Prices

As noted, almost all transactions reported were conducted at the village, so there was no significant difference between the price paid by traders coming from different locations (village, sub-district, or district). However, it was expected that the price would have varied with the age, sex, and breed of the cattle, and the village location (corresponding to the distance from the major markets); no reliable data could be obtained on the weight or condition of the animals sold.

Table 7. Mean price of cattle sold by age, sex, breed, and site

Age and sex	Lowland site (Rp 000)		Upland site(Rp 000)	
	PO	Crossbred	PO	Crossbred
Adult				
- Male	6,500	7,500	6,250	9,156
	(n=2)	(n=1)	(n=4)	(n=8)
- Female	6,067	6,125	5,533	7,000
	(n=9)	(n=2)	(n=9)	(n=3)
Young				
- Male	5,500	4,738	3,125	5,543
	(n=2)	(n=3)	(n=4)	(n=10)
- Female	5,600	4,925	4,000	6,625
	(n=2)	(n=2)	(n=2)	(n=4)
Calves				
- Male	3,271	3,935	-	4,200
	(n=12)	(n=17)		(n=4)
- Female	2,553	3,329	3,933	3,521
	(n=11)	(n=15)	(n=3)	(n=7)

Table 7 indicates that crossbred animals generally obtained a higher price than Ongole Cross (PO) (20-30% higher for crossbred calves and up to 50% higher for crossbred adults). Male cattle generally obtained a higher price than female cattle (though this was not borne out in the 1-2 year age class). However, there was no significant difference between the price obtained in the lowland and upland sites.

This latter finding suggests markets are well integrated throughout East Java, and probably beyond. For example, it is possible that some of the cattle bought in the upland site may be transported across district and provincial boundaries for fattening, before being sold in the major markets. This will be the subject of further research.

CONCLUSION

The arrangements for the first-stage marketing of cattle in East Java are relatively uniform and straightforward. Lowland farmers had more cattle on average than upland farmers, and mainoly sold calves, whereas upland farmers sold cattle in all age classes. Most farmers sold to village collectors, whether based in the village or elsewhere in the sub-district. Hence the subsequent marketing costs and risks were borne by the traders. Very few farmers sold their cattle directly in the public market-place. While some farmers used a regular trader, more so in the lowland site, others varied their choice of trader depending mainly on the price offered. The village traders mostly paid in cash. Prices appeared to be competitively determined, with crossbreed animals obtained a higher price than the traditional Ongole Cross (PO), while male cattle obtained a higher price than female cattle. There was no obvious difference between upland and lowland locations, suggesting a well-integrated regional market. The main reason for selling the animals was to meet the farm-household's needs for cash for consumption, including schooling and health care, as well as acquiring durable assets such as a motorcycle. The village traders mostly sold the cattle in the sub-district market-place. The subsequent movement of cattle to fattening operations and to slaughter-houses will be a crucial aspect of future research.

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