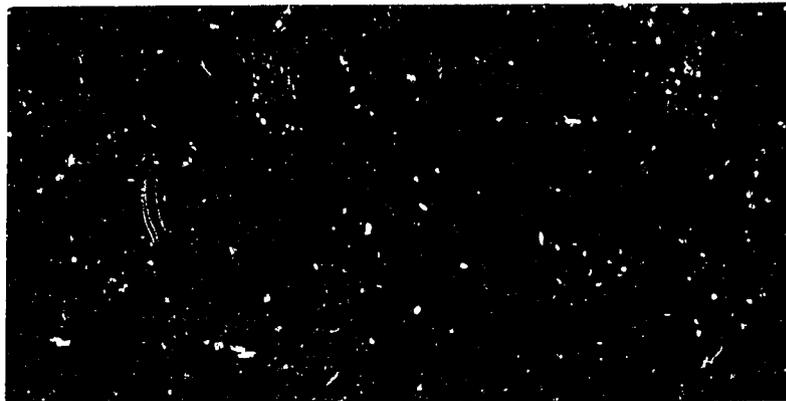


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A PROFILE OF SHEEP AND GOAT MARKETS  
IN WEST JAVA, INDONESIA

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## PREFACE

This report is the first of several dealing with the marketing and pricing of small ruminants in Indonesia. The survey reported here was carried out by a team from Winrock International and the Research Institute for Animal Production under the auspices of the Small Ruminants CRSP and with the cooperation of the Directorate of Animal Husbandry (Dinas Peternakan) of West Java Province. The fieldwork was completed in early 1982, and a preliminary draft was completed by May, 1982.

The survey was carried out using rapid rural appraisal techniques to allow the researchers to gain an understanding of the nature of the small ruminant marketing system, who the principal participants in the market were, and assess price formation and price fluctuations. The results of this study were then used to guide further research into the role played by one of the key market participants--the village trader--and the role of Islamic holidays in determining small ruminant prices and market volumes.

The survey was a joint activity between the Indonesian Central Research Institute for Animal Sciences, the Research Institute for Animal Production (BPT), the West Java Provincial Government, and the Small Ruminants Collaborative Research Support Program in Indonesia. The work reported here is carried out by the SR-CRSP Socioeconomics Program with cooperation from the BPT Farming Systems Program.

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## 1. INTRODUCTION

Small ruminants play an important role in supplementing the income of small farmers in Indonesia. Average figures indicate that income derived from livestock ranges from 8-10% for lowland farmers to 10-20% for upland farmers (Gunawan, 1979; Levine, 1982; van Santen, 1980). As small farmers are often unable to finance the purchase of larger livestock species (cattle, water buffalo, horses), poultry, sheep and goats are the only sources of livestock income for these farmers. A survey of small ruminant holders in different locations has shown that small ruminants are well distributed over farms of different sizes (Sabrani, et al., 1982). This indicates that the income derived from sheep and goats forms a larger share of the total income for small and landless farmers than for large holders. This observation is supported by an agricultural labor analysis by the Social Agricultural Survey in the eastern part of West Java Province. These data show that low income farmers spend relatively more time on livestock activities than medium and high income farmers. If it is realized that the ownership of cattle and land is generally restricted to the wealthier farmers, the importance of goat and sheep husbandry for the poor rural populations gains special relevance.

The acceptance of the livestock enterprise within the farming system is largely dependent on the marketability of the product. Goat and sheep play an essential role in (a) the capital formation and (b) the capital "storage" functions in small holder farming systems (Mink, 1982). As both functions link the farmers with the commercial sector, the suitability of the market system ("market convenience", Sandford, 1982) should be examined. A first step in this direction is the description of the present market system for sheep and goats.

## 2. METHODS

In farming system analysis, there has recently been a focus on more efficient surveys (Bernsten, 1980; Chambers, 1981). Long and detailed studies exhibit three major weaknesses. First, the time lag between field research and presentation of results makes it impossible to combine the results with development programs already in progress. The more advanced a development program is, the more difficult it is to implement changes in its design. Secondly, detailed studies (such as multivisit household surveys) are a drain on the limited research resources available, diverting funds and manpower from other urgent problems. Thirdly, these studies tend to yield location specific results restricting their meaning for larger geographical areas (Menz and Knipscheer, 1981).

Rather than aiming for a detailed survey, a team from the Research Institute for Animal Production (BPT) at Bogor conducted a two week field-trip in West Java in early 1982 visiting two locations; Cirebon, a typical lowland farming area and Garut, a typical upland farming area.

The main consumption center for sheep and goats, Bandung, was also visited. To obtain a rapid assessment of the regional market for sheep and goats, key participants in the marketing process were interviewed. A desk study of available literature and secondary data complemented the field results. This method allowed the report to be completed within three months. This paper presents a summary of the major findings.

### 3. RESULTS AND DISCUSSION

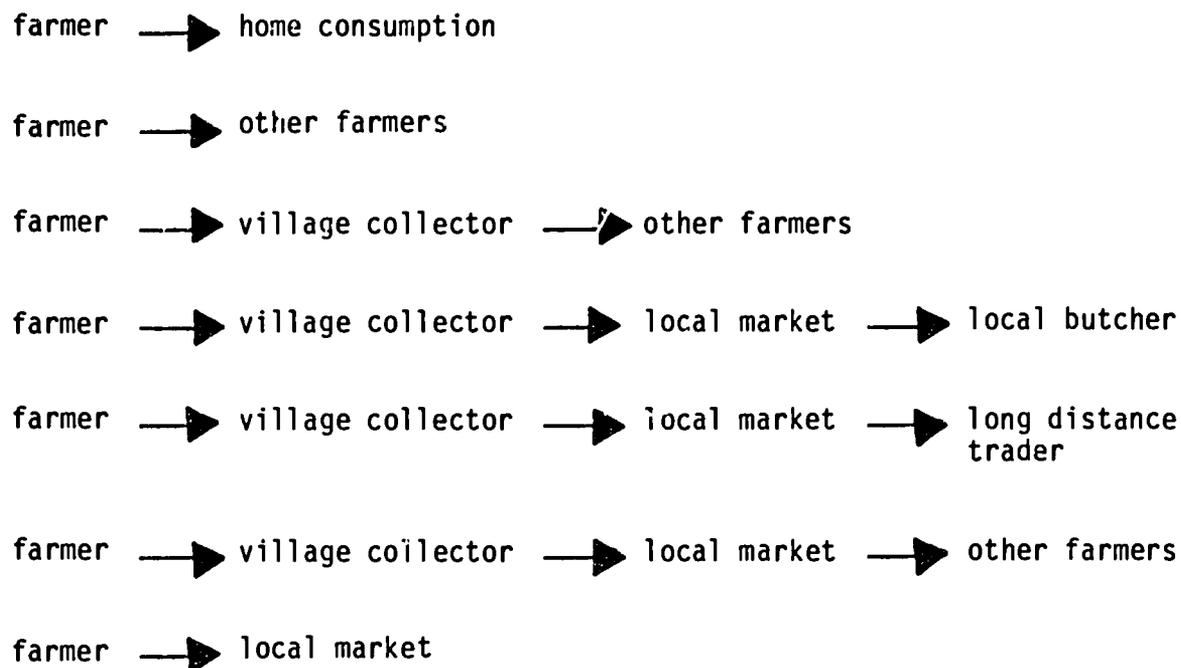
#### 3.1. Market Chains and Market Participants

Sheep and goats are disposed of through commercial sales, barter, and home consumption. The main outlets for farmers are the local markets. These are sometimes permanent, but more often take place only once or twice per week.

Commercial sales are usually made to the village collector at the farm gate or directly to the local market by the farmer himself. The market flows mainly involve the trading of live animals. Different chains are presented in figure 1. The marketing flows in West Java differ from those in other countries such as Iran (Martin, 1982), and Brazil (Gutierrez and De Boer, 1982) because of a key figure in the village trading; the village collector (bandar). He buys and sells goats and/or sheep as a secondary activity. Sometimes he keeps animals for fattening or in anticipation of price increases. The skill of trading lies in the examination of the animals. Traders as well as butchers estimate the value of an animal by sight and touch. This system of carcass estimation is by definition, rather subjective and is therefore part of the bargaining process. Buyers may underestimate the weight of an animal, while sellers may overstate its physical qualities. Village collectors often seem to have taken over the trade from their fathers. This would indicate that the skill of estimation and bargaining is not an easy one, and it therefore restricts the participation of farmers in animal (open market) trade. It also may indicate a rather stable patron-client relationship, typical of traditional market systems (Anderson, 1980).

There are also strict economic reasons why individual producers prefer to deal with the village collector rather than with direct market trading. The high cost of transporting and selling one animal at a time to the local market is an incentive to sell to the village collector (Mink, 1982). This cost is compounded by the risk of not selling the animal at all. Of the animals brought to local markets, only about 40% in Cirebon and 75% in the Garut are sold the same day (table 1). This implies that a farmer risks not being able to sell his animal at the "current" price. He then has the choice between accepting a lower price than anticipated and returning to the village with his animal. The village collector who trades several animals at a time and has a stronger financial position is in a much better bargaining position; he expects to take relatively few animals back home.

**FIGURE 1. MARKETING FLOWS OF LIVE SHEEP AND GOATS IN WEST JAVA**



**TABLE 1. REPORTED MARKET VOLUME OF SMALL RUMINANTS IN CIREBON AND GARUT DISTRICT (KABUPATEN)**

Location		Goat	Sheep	Combined
Cirebon	A	7,418	36,125	43,543
	B	3,144	14,485	17,629
	C	42.4%	40.1%	40.5%
Garut	A	19,561	32,366	51,927
	B	13,395	25,490	38,885
	C	68.5%	78.8%	74.9%

A = animals entered the market.

B = animals traded.

C = B as percentage of A.

Source: Dinas Peternakan, West Java.

The role of village collector does not seem to include extension of cash credit to his suppliers. Most villages have one or two village collectors. In the Garut region, only about 20% of the animals are sold directly by the farmers to the local market. The relationship between the village collector and the farmer is therefore a crucial link in the marketing chain and deserves further investigation.

The local market is also an important source of live animals for the farmers. For example, about 20% of the animals traded on the Garut local markets return to farmers. Buyers at the local markets include village collectors, local and urban butchers, and traders from distant urban markets such as Bandung.

Local government officials are generally responsible for the market facilities (grounds, slaughterhouse), but there are also a few privately managed markets, such as Arjawinangun near Cirebon. Government officials also collect taxes and enforce government regulations which forbid the slaughter of young females and pregnant animals. With special permission, however, infertile females are allowed to be slaughtered. Another regulation requires all slaughtering for home consumption to be reported. As the reporting of home slaughtering also involves the payment of a fee, however, there is an incentive not to report. And in spite of the regulation forbidding it, the slaughtering of pregnant animals is not uncommon. In a slaughterhouse study in Bogor, as many as 26% of the female animals were pregnant. Of these pregnant sheep and goats, 20% were more than 3 months pregnant (Obst et al., 1980).

Market fees (generally Rp 100 per head<sup>1</sup> sold) are levied in Cirebon. This regulation sometimes leads to the trading of animals outside the market so that the animal is recorded as "not sold". Indeed, the percentage of animals "not sold" is reported to be considerably higher in the Cirebon area than in Garut (60% versus 25%, table 1). Slaughterhouse fees do not differ much (Rp 500-600). These fees include health and meat inspection.

Butchers often buy directly from the local market. They sell to meat retailers or directly to consumers. Mutton and goat meat are used mainly for the preparation of sate (pieces of meat roasted above wood coals on skewers) or in soup. It is sold in restaurants and small food stands (warung sate and sop kaki kambing). Sheep and goat butchers, therefore, sell the carcasses or meat cuts directly to these retailers.

Butchers usually expect the carcass weight for males to be 50% of the live weight. As females accumulate more fat than male animals (about 5% versus 3% of carcass weight, see Obst et al., 1980), male animals are preferred. For adult females the dressing percentage is somewhat lower, about 45% (see also Kartadihardja, 1979; Mc Dowell and Bove, 1977; Gall, 1982; Devendra, 1981). In Indonesia, the edible portion of the live weight is about 70%, since offals and head are sold (table 2) while up to 80% of the live weight is saleable if skin is included.

An interesting group of market participants are located in the Cirebon area. These are the brokers (palem-palem or blantik) who dominate at least 70% of the market trade in Cirebon. They are permanently at the market sites and do the bargaining for persons willing to buy or sell. By restricting the bargaining process to themselves, they are able to

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<sup>1</sup> U.S. \$1.00 = Rp 650 (Rupiah) during this study.

monopolize the trade as well as the price information. Brokers need a special license from the local government of origin (rather than from the local government in the location where they operate, i.e., Cirebon). The system seems to restrict free market participation by farmers and village collectors. This aspect of the West Javanese market system deserves further investigation.

### 3.2. Market Flows and Market Structure

Bandung represents one of the main centers of sheep and goat consumption in West Java (other important urban areas are Jakarta and Cirebon). From slaughter figures it is estimated that about 20% of the sheep and goats slaughtered in Bandung originate outside West Java. This indicates the potential for small ruminant production in the province of West Java.

In Garut, however, the urban market is supplied completely by regional production. The surplus of animals (about 50% of the traded animals) is sold to Bandung. By comparing the figures for slaughterings and animals traded at four markets in Garut it is estimated that the local consumption is about 30% of all animals traded. As about 20% goes back to farmers for breeding and(or) fattening, this implies a yearly local consumption of about 12,000 animals, while about 19,800 are sold to Bandung. This estimate implies that the reported yearly entry of small ruminants into Bandung (6,000) is much lower than the real influx.

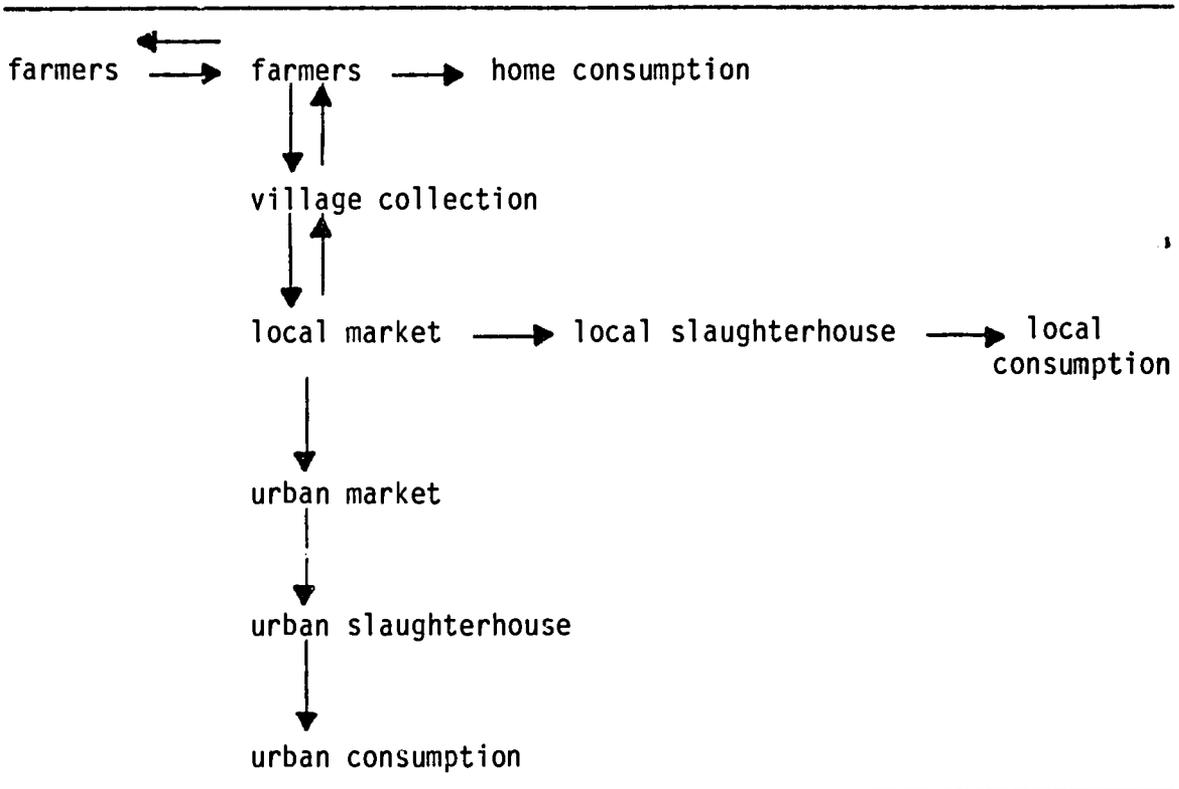
Cirebon, on the other hand, is dependent on the supplies from Central Java. The picture, however, is confused by the trading of animals from Cirebon to Bandung and(or) Jakarta. This makes an estimation of the total market volume of sheep and goats in the Cirebon district (kabupaten) a hazardous exercise.

The market flows are generalized in figure 2. Urban markets included the provincial capital (Bandung) as well as district capitals such as Garut and Cirebon.

From Garut to Bandung, as well as from Central Java to Cirebon, cars or minibuses are used to transport animals from farms or villages to the local market. For shorter distances, bicycles (beca) are more common. In the district of Cirebon, traders and farmers use bicycles with baskets on both sides for transportation. For both minibus and bicycle, the price per animal is usually the same as the price per person.

In the Garut district, about 60% of the (local) market participants transport their animals on foot. Most of them come from a 3-4 kilometer radius of the market.

**FIGURE 2. GENERALIZED MARKET STRUCTURE FOR SHEEP AND GOATS IN WEST JAVA**



### 3.3. Storage

Animals are sometimes "stored" at the slaughterhouse, as in the town of Cirebon. The storage of animals is always the responsibility of the trader or butcher. For this purpose grass cutters are hired who cut about 10 kg of (fresh) grass for about Rp 200. During the dry season this price increases to Rp 300. Village collectors who are not able to sell their animals take them back home and feed them until the next selling opportunity.

Fresh meat can be stored for a few days at retail meat shops. These are usually open stalls with wooden tables sometimes covered with zinc or marble. Cuts of meat or carcasses are usually hung at room temperature until sold. At higher elevation (Garut at 700 meters), meat keeps for up to three days. Beyond that, meat is dried in the sun to make deng-deng, a sweet dry meat. The curing is done with sugar, salt, and spices. One kilogram of fresh meat produces about 400 grams of deng-deng.

### 3.4. Processing

Apart from the carcasses, other parts of the animals are also sold, such as hides, organs, head, lower legs, tails, tallow, and sometimes blood.

A hide amounts to about 2 kg of the live weight of an animal. Its price is about Rp 3,250 per sheep or Rp 2,000 per meter. By law, it is the only part of sheep and goats that can be exported from Indonesia.

Before sending his hides to the hide collector, they are salted and sun-dried without removing the wool or hair from the skin. Hide collectors were not interviewed for this particular survey; nevertheless they might be able to provide a more accurate estimate of the number of local and regional slaughterings than can be derived from official reports.

All the digestive organs, including the heart, liver, spleen, and lungs are sold by the butcher. Generally these organs are used for the preparation of gulai, an Indonesian curry soup. Liver has the highest value and is even more expensive than meat. Only the rumen and intestines are discarded.

Sheep and goat heads are roasted to remove the wool or hair. They then sell for about Rp 1,000 per head.

For most Indonesians, the lower legs and tails (especially the tails of fat-tailed sheep) are among the choicest parts of the animal. They are used for the preparation of soup: sop buntut and sop kaki kambing.

Sheep, especially mature animals, accumulate a considerable quantity of fat in their abdomens. This tallow is usually used in preparation of sate. In Garut, the tallow is used in the preparation of dodols, a sweet hardened jam packed in small pieces of waxed paper. Dodol Garut is considered one of the best Indonesian confections.

The blood weight in sheep and goat is negligible. Only in large slaughterhouses, such as in Bandung, is the blood collected (by the slaughterers) and sold to the blood collectors (bandar darah) or to blood meal producers.

### 3.5. Price

Market price is one of the most important economic factors that directs the allocation of the farmers' limited resources. In West Java, meat market prices are not subject to any government price policy and are therefore determined by the supply and demand of different kinds of meat. Based on the estimated conversion rate (table 2) multiplied by the sales price, the value of the sheep or goat for the butcher can be estimated. For an 18 kg animal, this amounts to a carcass value of about Rp 20,000, a hide value of about Rp 2,000, and about Rp 5,500 for by-products. Slaughtering, marketing, and local transport fees amount

to about 1,000, meaning a butcher might expect about Rp 26,300 cash income from his animal. The market price for sheep and goats in Garut is about Rp 1,200 per kg live weight, or Rp 21,600 for an 18 kg animal. As a rule of thumb, butchers estimate that the farmer is paid for the carcass value of his animal, while the value of the by-products provides the gross margin for traders and butchers.

**TABLE 2. REVENUE COMPONENTS OF AN 18 kg SHEEP/GOAT (GARUT)**

Component	Weight (kg)	Retail Price (Rp/kg)	Total Revenue (Rp)
Carcass	9	2,200	19,800
Hide	2		2,200
Inner organs	1.5	2,000	3,000
Head	1.5	1,000	1,000
Lower legs	1.0	1,500	1,500
Waste	3.0	0	0
<b>TOTAL</b>	<b>18.0</b>		<b>27,300</b>

U.S. \$1.00 = Rp 650.

In a comparison between prices of different meats in Bandung, beef consistently carries a price about 15% higher than the price for mutton, and about 5% higher than water buffalo meat (table 3). In Garut, prices for mutton and beef are practically equal, while water buffalo sells for a lower price (-5%). The spatial price difference for sheep and goat meat between Bandung and Garut is about Rp120/kg of meat, which is about 5% of the value. Using the example of an 18 kg animal (market value Rp 21,600), this amounts to a marketing margin of Rp 1,080 per animal. The transport cost between Garut and Bandung is Rp 700 per animal, leaving a modest profit of about Rp 380 per sheep or goat for the middlemen. The spatial price difference for cattle and water buffalo is larger, reflecting the higher transport cost for these animals.

**TABLE 3. ANNUAL RETAIL PRICES FOR MEAT AT THREE MAJOR MARKETS IN WEST JAVA (Rp/kg, 1981)**

Prices (1981)	Bandung	Cirebon	Garut
Cattle	2,617	2,200	2,225
Buffalo	2,479	2,200	2,098
Goat/Sheep	2,317	2,200	2,196

Source: Dinas Peternakan, West Java.

Price differences between Bandung and Cirebon are comparable to those between Bandung and Garut. However, the lack of accurate price informa-

tion for each kind of meat in Cirebon does not permit a specific conclusion at this time.

In general, prices, slaughtering data, and market information indicate a fairly competitive market system, with some regional differences in meat preference. Although the slaughtering data for goats and sheep in Bandung seem to be far from complete, the high numbers of large ruminants slaughtered in this city and a 15% price differential for beef, indicates a preference for beef. In Garut and Cirebon the consumers prefer sheep and goat meat although beef is available for about the same price.

### 3.6. Seasonality

Reported retail prices for meat in Garut and Cirebon do not fluctuate over time. The field survey, however, indicates that during the Islamic holidays (lebaran), prices will rise by about 10%. In particular, during the celebration of Idul Adha, kibas (sheep or goat) are slaughtered. Rams are preferred. Survey data for the Garut area showed that during this period, farmers received almost 40% higher prices for his adult male animals (table 4).

Market data from the Livestock Husbandry Service (Dinas Peternakan) as well as the information obtained during the field survey indicates that during the month of Idul Adha, the number of traded animals amounts to nearly twice the monthly average. Surprisingly, this fluctuation in number of animals traded is not that pronounced at the farmgate level (table 4). This implies that the accumulation of sheep and goats for this holiday occurs at the level of the middlemen (bandar or blantik) rather than at the farm.

Retail prices for sheep and goat meat in Bandung further confirms the importance of the Idul Adha. High prices occur in 1979 during November and shift forward to October in following years parallel to the shift in the dates caused by the Islamic calendar (table 5).

Slaughterings of sheep and goats during lebaran are seldom reported as it is mostly done according to religious rituals rather than at the official slaughterhouses.

**TABLE 4. MONTHLY FARMGATE SALES AND PRICES FOR SMALL RUMINANT FARMERS IN THE GARUT AND CIREBON DISTRICTS**

Month	GARUT (N = 135 farmers)						CIREBON (N = 79 farmers)					
	AM	Price	AF	Price	YA	Price	AM	Price	AF	Price	YA	Price
Nov. '80	4	27,500	10	23,850	7	21,400	1	15,000	0	--	1	16,000
Dec.	1	30,000	1	40,000	1	16,000	0	--	3	21,700	2	16,000
Jan. '81	4	25,500	6	31,300	0	--	1	25,500	1	30,000	5	23,000
Feb.	0	--	2	24,000	4	18,900	3	25,700	6	28,000	5	15,000
Mar.	4	47,500	3	26,700	1	17,500	2	26,000	7	26,100	3	15,700
Apr.	0	--	2	27,500	3	22,000	0	--	3	23,700	6	12,500
May	3	38,670	4	32,500	13	17,600	5	20,600	3	22,700	3	12,700
Jun.	5	28,000	14	29,800	9	20,100	3	50,000	2	25,000	4	15,000
Jul.	11	31,400	17	23,700	9	18,600	0	--	5	20,400	2	16,500
Aug.	2	30,000	15	8,100	11	21,300	3	22,000	4	18,800	1	17,500
Sept.	8	49,900	8	28,600	14	18,700	2	25,000	4	21,800	4	15,000
Oct.	4	31,000	11	29,200	17	18,600	2	17,500	3	23,000	0	--
TOTAL/AVERAGE	46	34,800	93	27,900	89	19,400	22	26,000	41	23,700	36	16,100

AM = adult male.  
 AF = adult female.  
 YA = young animals.

(Source: BPT, unpublished data).

**TABLE 5. MONTHLY FLUCTUATION IN RETAIL PRICES FOR MEAT FROM SHEEP AND GOATS IN BANDUNG CITY (Rp/kg)**

Month/Year	1979	1980	1981
January	1,550	1,655	2,400
February	1,400	1,600	2,400
March	1,400	1,600	2,400
April	1,500	1,700	2,400
May	1,200	1,800	2,400
June	1,200	1,800	2,400
July	1,300	2,000	2,000
August	1,550	1,660	2,220
September	1,550	2,100	2,440
October	1,750	2,200	2,400
November	1,650	2,050	2,200
December	1,637	2,200	2,200
Yearly Average	1,474	1,865	2,317

Source: Dinas Peternakan, West Java.

#### 4. CONCLUSIONS

The objective of the study was the description of the marketing system for sheep and goats in West Java, and the identification of areas of further research.

West Java is a deficit production region for sheep and goat meat. It therefore has a good potential for higher production of small ruminants. The market for small ruminants in West Java seems to be fairly competitive, certainly in regard to transport and slaughtering.

Seasonality in demand occurs mainly during lebaran, the Islamic holidays, in particular during Idul Adha. However, preliminary figures at farm level indicate that farmers benefit only modestly from the higher prices during other periods. Key areas that deserve further research are the role of the village collector (bandar) and the local market broker (blantik).

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