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Goat Meat Production in Asia

Proceedings of a workshop
held in Tando Jam, Pakistan,
13-18 March 1988

Proceedings



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Editor: C. Devendra



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Abstract/Résumé/Resumen

Abstract: This publication presents the results of a workshop held in Tando Jam, Pakistan, 13–18 March 1988, that focused specifically on all aspects of goat meat production in Asia. The workshop addressed the factors affecting meat production (breeding, nutrition, reproduction, sex, management, animal health, and diseases), the nutritional value of goat meat, methods of slaughter, processing techniques, consumer preferences, and the national and international marketing of goats. The detailed discussions on these aspects were further highlighted by country case studies, prevailing situations, issues and policies, and potential for improving the prevailing patterns of production. An important session covered broader issues concerned with research and development, strategies for increasing production, and export potential, especially in Near East markets. These discussions enabled a definition of research and development priorities and the scope for increasing goat meat production.

Résumé: Cette publication fait le compte rendu d'un atelier tenu à Tando Jam, au Pakistan, du 13 au 18 mars 1988 et qui a porté sur tous les aspects de la production de la viande de chèvre en Asie. Il y a été question notamment des facteurs influant sur la production de la viande (sélection des espèces, nutrition, reproduction, sexe, gestion, santé animale et maladies), de la valeur nutritive de la viande de chèvre, des méthodes d'abattage, des techniques de transformation, des préférences des consommateurs et du marketing national et international des chèvres. En plus de discuter de ces questions en profondeur, les participants ont aussi abordé les points suivants : études de cas de certains pays, situations actuelles, enjeux et politiques, et possibilités d'améliorer les tendances actuelles de la production. Lors d'une séance importante, les participants se sont penchés sur des questions plus vastes concernant la recherche et le développement, les stratégies qui permettraient d'augmenter la production et les possibilités d'exportation, particulièrement vers les marchés du Proche-Orient. Ces discussions ont permis de définir des priorités en matière de recherche et de développement et de déterminer le potentiel de croissance de la production de la viande de chèvre.

Resumen: Esta publicación contiene los resultados de un taller celebrado en Tando Jam, Paquistán, del 13 al 18 de marzo de 1988, dedicado específicamente a todos los aspectos de la producción de carne de cabra en Asia. El taller estudió los factores que afectan la producción de carne de cabra (cruce, nutrición, reproducción, sexo, manejo, salud y enfermedades), el valor nutricional de la carne caprina, los métodos de sacrificio, las técnicas de procesamiento, las preferencias del consumidor y el mercado caprino nacional e internacional. Las discusiones detalladas sobre estos aspectos se vieron además enriquecidas con el potencial para mejorar los patrones prevalentes de producción. Una de las sesiones importantes cubrió los aspectos más amplios de investigación y desarrollo, estrategias para el aumento de la producción, potencial de exportación, especialmente en los mercados del cercano oriente. Las discusiones permitieron determinar las prioridades de investigación y desarrollo así como las posibilidades para aumentar la producción de carne caprina.

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Goat meat production in the Philippines

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Abstract: Goats play an important role in Philippine agriculture. They provide secondary income to farmers with minimum investment. More than 99% of goats are raised in the backyard. This has been the trend for many years. Goats account for a mere 2.2% of the total livestock and poultry population. From 1976 to 1986, the annual per capita consumption of goat meat (chevon) ranged from 0.14 to 0.24 kg. Goats in the Philippines are normally marketed on a per head basis passing through a five-level distribution system involving the producer, barrio agents, wholesalers, retailers, and consumers. The price difference between the farm and consumer is 60–75%. The goat industry has good potential if the marketing and production problems are solved.

Résumé: La chèvre est un élément important de l'agriculture philippine. Avec de minimes investissements, les fermiers en retirent des revenus d'appoint. Aux Philippines, c'est derrière la maison que se fait l'élevage de 99 % des chèvres, une pratique qui existe depuis de nombreuses années. Les chèvres y représentent à peine 2,2 % de l'ensemble du bétail et de la volaille. De 1976 à 1986, la consommation annuelle per capita de viande caprine est passée de 0,14 à 0,24 kg. La commercialisation des chèvres y est habituellement individuelle et soumise à un réseau de distribution à cinq paliers : producteurs, agents de quartier, grossistes, détaillants et consommateurs. L'écart entre le prix qui est versé au fermier et celui qu'on demande au consommateur est de 60 à 75 %. L'industrie caprine offre de bonnes possibilités, pourvu que soient résolus les problèmes de commercialisation et de production.

Resumen: La cabras desempeñan un importante papel en la agricultura de Filipinas. Con un mínimo de inversión, estos animales proporcionan ingresos secundarios a los granjeros. Más del 99% de las cabras se crían en el solar de la casa. Esta ha sido la tendencia por muchos años. Las cabras constituyen solamente un 2,2% de las existencias totales de ganado y aves. De 1976 a 1986, el consumo anual per cápita de carne de cabra fue de 0,14 a 0,24 kg. Las cabras en Filipinas se comercializan normalmente por cabeza, pasando a través de un sistema de distribución de cinco niveles en el que participan el productor, los agentes de barrio, el mayorista, el comerciante minorista y los consumidores. La diferencia de precio entre la granja y el consumidor es de 60 a 75%. La industrialización de la cabra tiene un buen potencial si se resuelven los problemas de comercialización y producción.

Philippine goats exhibit considerable variation in conformation, hair colour, size, and productivity. Nevertheless, they are important multipurpose animals producing meat, milk, and skins. They are small, have inquisitive feeding habits, limited subcutaneous fat, a large surface area relative to body weight, and a short generation interval. Traditionally, goats are not looked after, with no attention given to their feed, water, and shelter (Abilay 1983); they are allowed to graze freely throughout day. Raising goats in the backyard takes little working time, the income generated, however, is also minimal. The average mature weight is 18 to 20 kg. Many goats are tethered in subdivisions and farm lots. The goat has developed into a "handy" animal that thrives in areas that differ markedly in agroclimatic conditions and level of management. It has survived despite near total neglect and is now found throughout the country. Goats are commonly found tethered to forage on noneconomic vegetation or are let loose in vacant lots otherwise nonproductive for agriculture.

The production of goats in the Philippines is low. Based on the Bureau of Agricultural Economics survey (BAE 1987), there were about 2.2×10^6 goats in 1986 of which more than 2.1×10^6 were raised in the backyard and only about 29×10^3 were raised on a commercial scale. Goat raising forms an important and integral part of smallholder agriculture in the countryside. The majority of goats (99%) are raised by farmers or by backyard raisers solely to supplement household incomes. The ownership pattern and the number of goats raised is 2 or 3 head/family. There are few commercial goat farms; the largest has no more than 400 breeding animals both for meat and milk production (Abilay 1983).

Goat meat (chevon) remains a special-occasion meat, slaughtered and eaten during special occasions such as birthday parties, weddings, and drinking sprees. It is usually prepared as "kilawen," "caldereta," "papaitan," etc. It is normally preferred by individuals who have developed the taste for it. Goat meat is seldom used in recipes for day to day consumption. Occasionally, goat meat is utilized for the production of cured products.

Consumption patterns

The average annual per capita meat consumption reported by the marketing service of BAE for 1962–1971 was about 15.3 kg (Abilay 1983). The distribution was 71.3% for pork, 23% for poultry, 5.2% for carabeef, and about 0.5% goat meat. In a 1974–1976 survey, the consumption pattern for meat was 61.7% for pork, 16.1% for carabeef and beef, 11.3% for poultry, 11.4% for all other meats and less than 0.5% for goat meat. In 1985, the Bureau of Animal Industry (BAI) planning survey indicated that the consumption of meat was 54.25% pork, 30.14% poultry, 12.81% beef, and 2.82% mutton, goat meat, and lamb.

From 1973 to 1983, the consumption of goat ranged from 7,443 to 12,358 t/year (Table 1). Per capita consumption was almost the same from 1973 to 1976, declined from 1977 to 1979, rebounded from 1980 to 1982, and dropped again in 1983 (Table 1). This trend is consistent with traders' claims that consumption increased during the early 1970s because of the proliferation of goat specialty restaurants that provided alternative products whose unit cost was much lower than the traditional live goats. The leveling off in the mid-1970s suggests a saturation of

Table 1. Per capita consumption of goat meat (1973–1981).

Year	Meat consumed (t/year)	Per capita consumption (kg)
1973	9778	0.24
1974	9507	0.23
1975	9249	0.22
1976	9004	0.21
1977	6669	0.15
1978	7624	0.17
1979	7712	0.15
1980	11326	0.23
1981	11558	0.23
1982	12358	0.24
1983	7443	0.14

Source: Adapted from Taccad (1985).

the market. The drop in consumption during the latter part of the 1970s and in 1983 was probably due to the general price increases of all commodities.

Patterns of production

Systems of raising goats

Goat production in the Philippines can be classified into three categories: tethering, integration with cropping systems, and intensive production (Taccad 1985). In these three systems, there is no clear definition of the objectives of production: meat or milk.

Tethering is the most common system, practiced by over 90% of the farmers. Most of these are small-scale farmers with less than 2 ha of land. Quite often, goats form an adjunct but important component of the integrated crop-livestock pattern of agriculture. The average size of the herd managed by smallholders ranges from one to five head. This indicates that small herds are common and that goats are secondary in nature. Goats are raised for additional income and for slaughter during fiestas and other special occasions. For these purposes, goats require minimal management and attention. The animals are cared for by unpaid family farm labour and they occupy a very small housing space. They are often tethered below the house at night. The tethered animals are normally not given additional feeds aside from crop residues they can graze on.

The source of stock to start the herd is commonly from the "iwi" system, where a doe is borrowed from a neighbour. It is bred and taken care of. When the doe gives birth to its kids, the owner and the caretaker divide the kids equally. When enough starting stock is obtained, the doe is returned to the owner and may be given to other farmers in the locality.

Despite the minimal attention given to the goats under this system, the doe gives birth three times in 2 years (Taccad 1985). Twinning is common; triplets occasionally occur. The mortality rate before weaning is high, about 20%. This is because of poor feeding, leading to low milk production by the doe and a high incidence of respiratory diseases and gastrointestinal parasites (Sevilla 1988). Because of this method of raising, the goats have evolved small to cope with the environment. Native goats become hardy and resistant to pests and diseases (Taccad 1985).

Goat integration with cropping systems is usually done by raising them under coconuts and other perennial crops. The system is not widespread because many farmers discriminate against it. Goats tend to eat and disturb the trunks of perennial crops.

The intensive production system has three variations. Goats may be allowed to graze on cultivated pastures, be fully confined, or be semiconfined in stalls. Under these systems, more intensive husbandry practices are used. Goats are supplemented with concentrates, but the amount given varies from farm to farm. It is on these farms that breeding is also practiced. There were about 31 farms of this kind in 1982 (MAF 1983). In 1985, the total population of goats in the Philippines was 2,190,750, of which the intensive system accounted for only 31,520 (Table 2). Backyard production accounts for 98.6%, and this trend exists in all regions of the country (Table 2).

The goats raised in the Philippines are essentially the native breed. The

government has introduced some foreign breeds such as the Anglo-Nubian, Alpine, Saanen, Toggenburg, and Jamunapari. In the few commercial farms, some of these breeds are maintained in their pure state. However, the majority are maintained as crosses or used to upgrade the native goats. In backyard farms, knowingly or unknowingly, foreign blood has also been introduced. The performance of foreign breeds in the country in terms of milk and meat production is consistently lower than the recorded performance of the breeds in their country of origin. This has been attributed to climatic conditions and to the generally poor nutrition and management.

Importance of goats

In 1976, goats accounted for only 1.3% of the livestock and poultry population. This increased to 3.0% in 1986 at the expense of chicken, carabao, and cattle. The average growth rate of the goat population from 1977 to 1984 was 11.5%. The goat population from 1976 to 1986 indicates that this species has not been emphasized compared with chicken, carabao, and cattle. Meat production follows a similar trend as that of livestock population (Table 3). Pork accounts for the bulk of meat produced. This is followed by poultry, beef, carabeef, and lamb, mutton,

Table 2. Goat inventory in backyard and commercial farms by region (1985).

Region	Backyard	Commercial	Total
Ilocos	246360	2290	248650
Cagayan Valley	50300	3740	54040
Central Luzon	139490	4210	143700
Southern Tagalog	212130	4160	216290
Bicol	113990	4800	118790
Central Luzon	-	-	-
Western Visayas	640	1880	233520
Central Visayas	7850	670	308520
Eastern Visayas	53530	180	53530
Western Mindanao	170090	440	170530
Northern Mindanao	147790	1630	149410
Southern Mindanao	258700	5800	264506
Central Mindanao	227550	1720	229270
Philippines	2159230	31520	2190750

Source: Anon. (1987).

Table 3. Meat production (t) from recognized abattoirs.

Year	Beef	Pork	Mutton lamb, goat meat	Horse meat	Chickens, ducks	Others, carabeef
1979	42629	64019	24	551	94399	83902
1980	45327	195041	680	704	12080040	39679
1981	43361	233422	920	1713	28504	13675
1982	39433	222806	1261	1437	36105	18373
1983	58836	240440	1437	775	56455	19537
1984	45586	255024	775	228	48482	25398
1985	43654	200153	2042	126	107025	18498

and goat meat. Lamb, mutton, and goat meat production consistently increased from 24 t in 1979 to 2042 t in 1985. It is estimated that by the year 2000, mutton, lamb, and goat meat production will be about 4020 t. If this production target is attained, there would be a minimal increase in per capita consumption because the human population would have increased considerably.

Marketing aspects

Traditionally, the meat-distribution system is multilayered with many middlemen involved in the process. The most common is the five-level distribution system (Fig. 1). Recently, producers started profits, resulting in a three-level distribution system (Fig. 1). The retailers may be divided into public markets and supermarkets, wet markets, groceries, and institutional markets.

Over 90% of goat meat is marketed live. Traders buy live goats on a per head basis and sell directly to livestock market centres. Prices are usually determined by buyers in accordance with the appearance of the animal. Prices vary from region to region, from year to year, and from month to month (Tables 4 and 5). Purchasing is usually done near important consumer centres. Fresh goat meat is retailed to consumers in a few public and private markets. Market prices of breeding animals vary based on the breed, size, age, and body conformation.

Farm gate prices of live goats are commonly highest in Ilocos, Central Luzon, Cagayan Valley, and some parts of Mindanao. The people of these regions have developed a taste for goat meat. Farm gate prices are low in April, May, June, October, November, and December (Table 5) and heavy disposals are common during these months.

In 1980, farm gate prices ranged from PHP 3.51 to 7.45/kg live weight, with an average price of PHP 5.31/kg (in March 1988, 18.8 Philippine pesos [PHP] = 1 United States dollar [USD]). In Metro Manila, live goats were priced at PHP 6.63/kg; goat carcass cost PHP 14.50/kg. In 1981, the export market prices for goat carcasses in Saudi Arabia and Hong Kong were USD 1.65 and 1.61/kg, respec-

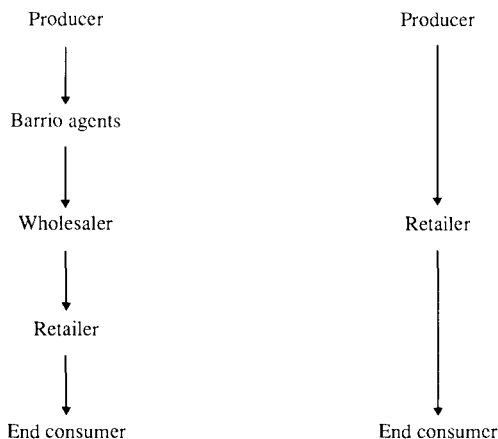


Fig. 1. Five- and three-level distribution systems.

Table 4. Average farm gate price (PHP/head live weight) of adult goats in selected regions (1971-1980).

Year	Philippines	Central Visayas	Ilocos
1971	30.9	25.32	43.43
1972	33.28 (7.5)	21.89 (-13.6)	44.69 (2.9)
1973	36.28 (10.6)	27.33 (24.8)	45.32 (3.6)
1974	53.80 (44.2)	38.75 (41.8)	66.50 (43.6)
1975	64.78 (22.0)	50.30 (29.8)	77.44 (16.4)
1976	74.81 (16.5)	63.36 (26.0)	90.75 (17.2)
1977	79.74 (6.6)	72.39 (14.2)	93.76 (3.3)
1978	77.68 (-2.6)	66.67 (-7.9)	93.29 (-0.1)
1979	91.91 (18.3)	61.90 (7.2)	120.06 (28.7)
1980	106.22 (15.6)	69.16 (11.7)	140.18 (16.8)
AAI ^a	16.3	16.6	16.2

Note: values in parentheses represent the percent increase (or decrease) from the previous year. In March, 1988, 18.8 Philippine pesos (PHP) = 1 United States dollar (USD).

Source: Taccad (1985).

^aAverage annual increase.

Table 5. Seasonal index of prices (PHP) received by farmers for adult goats in selected areas (1971-1980).

Month	Philippines	Central Visayas	Ilocos
January	102.02	96.68	102.68
February	102.56	105.61	100.70
March	101.86	117.93	94.87
April	87.19	100.00	101.93
May	100.78	101.23	99.74
June	100.30	97.29	98.38
July	101.78	96.27	100.29
August	100.30	95.94	100.51
September	100.49	94.26	100.21
October	98.43	98.89	99.66
November	99.37	99.98	100.96
December	97.25	98.73	99.12

Note: In March, 1988, 18.8 Philippine pesos (PHP) = 1 United States dollar (USD).

Source: BAE (1987).

tively. This is equivalent to PHP 13/kg, which is 19% lower than the 1981 prevailing price of PHP 16/kg.

In 1978, the farm gate price in Southern Tagalog farms and the retail price at the Quezon City market differed by PHP 53.36/head (Table 6). This represents a 71% increase in price. Similar gaps between farm gate and retail outlet prices were observed in 1979 and 1980. In certain cases, roadside market vendors slaughtered an animal that has been selected by the buyer. The carcass is left intact for the buyer. Product quality control and standardization practices are virtually nonexistent.

The goat distribution system varies from direct selling to selling through several agents. There are many trading schemes, but the major interprovincial traders are the municipal middlemen. In 1980, BAI reported 17 market centres where these middlemen operate. The goats are either brought directly to these market centres by the raisers or they are collected from individual farms by barrio agents. These barrio agents either operate on their own or are commissioned by

Table 6. Average farm gate and outlet prices (PHP/head) of live goats (1978-1979).

Year	Farm gate price		Outlet price, quantity	
	Philippines	Southern Tagalog	Wholesale	Retail
1978	77.68	74.94	101.20	128.30
1979	91.91	88.87	117.20	154.83
1980	106.22	107.72	138.92	189.30

Note: In March, 1988, 18.8 Philippines pesos (PHP) = 1 United States dollar (USD).

Source: Taccad (1985).

the middlemen to do the purchasing. The middlemen, in turn, ship the animals to the retailers.

In Metro Manila, retailers are concentrated along Quezon Boulevard and 20th Avenue in Quezon City and along EDSA in Caloocan City. Most retailers have been selling goats for over 10 years. The main sources of goats sold in these markets are Batangas, Cebu, Iloilo, Masbate, Samar, and Negros provinces. Goats from the southern islands are usually delivered once a week; goats from Batangas and nearby areas are delivered twice a week.

There are three common problems in goat marketing. First, because there are too many trade channels, procurement costs are high; during the past 3 years, prices have increased several times. Second, competition for goats during the peak months is intense and, during off-peak months, there is an excess supply. Third, demand and supply are seasonal; the two do not normally coincide.

On average, wholesalers mark up prices almost 30% (Taccad 1985). Retailers earn about 32%. This means that the farmer gets only about 40% of the amount the consumer pays for the goat meat.

Problems of the industry

Abilay (1983) outlined the problems of the goat industry as follows:

- Low productivity of goats as a result of general neglect of the species; low-quality breeding stock, poor nutrition, poor management practices, poor health programs, and inadequate services contribute to low productivity;
- Inefficient marketing as a result of a lack of organized marketing schemes and market standards, inadequate market information, etc;
- Inadequate capital; and
- Lack of well-trained goat scientists.

The utilization scheme for goats is a traditional problem. Because goat meat is a "special occasion" meat, demand has always been erratic. Plenty of Filipinos still discriminate against it; this may be due to availability problems in market stalls. It is much easier to buy pork, beef, poultry or carabeef than to buy goat meat.

Goat is a favorite meat during festivals. Data is unavailable on the amount of goat meat consumed compared with that actually produced. Because of inade-

quate supplies, all the meat produced is consumed. Goat meat consumption has always been associated with extravagance.

According to BAE (1987), about 5% of the adult goat population and 20% of newborn kids die every year. This high mortality has been attributed to poor husbandry practices and parasitic infestations.

Recommendations

Increased production can be easily achieved if an enterprise is proven to have high profitability. There must be an educational campaign to fight discrimination against goat meat. With increased consumption and demand, increased supply has to follow. Goat meat has to be made available on a retail basis, i.e., not on a per head basis. It appears that one of the reasons goat meat is not popular is that one has to buy the whole goat. There are few markets selling goat by the kilogram.

The price difference between the farm gate and the consumers must be reduced. Present trading channels for goats add about 60–75% to the price of animals. Productivity is still low because of poor husbandry practices. If the retail price was lowered to about the price at the farm gate, goat meat would become more popular. If the retail price of goat meat is maintained at its present level and the price at the farm gate is increased to almost the retail price, then the goat industry would become a lucrative business. High productivity will, in turn, attract investors to a point where there will be an oversupply of goat meat. Because of competition, however, only the efficient, well-managed enterprises will thrive. This competition would encourage the improvement of goat rearing, with reference to better management, better breeding stock, and increased production.

There is also considerable opportunity to utilize goat meat for processed products. It has been proven to have high acceptability, especially when used in combination with other meats. By-products from slaughter can also be processed for commercial sale.

For the export market, in 1982, the top 20 importers together imported approximately 14×10^6 sheep and goats (FAO 1984). Saudi Arabia tops the list with 3.2×10^6 head followed by Iran, Italy, Kuwait, and Libya. The use of improved breeds to produce better quality meat implies that the Philippines can also have a share of the foreign market. There have been some attempts to export goat meat to Saudi Arabia in the past, but these attempts were limited by inadequate volume and quality standards for regular shipping.

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