

Contribution of different livestock species as sources of meat in Bauchi

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Abstract

The daily records of various species of livestock slaughtered for meat for 122 days from June to September, 1995 at Bauchi metropolitan abattoir were analysed. Livestock slaughtered comprised cattle, sheep and goats being 6, 15 and 79 percent respectively. A total of 35, 846 animals were slaughtered, 2, 151 were cattle, out of which 1856, 169, 119 and 7 were White Fulani, Red Bororo, Sokoto Gudali and Kuri breeds respectively. Chi-square analysis was used and within breed significant ($P < 0.01$) monthly differences in their contribution was observed only in Red Bororo breed. Out of the 5,373 sheep slaughtered 3,961, 232, 1062 and 119 were Yankasa, Balami, Uda and crosses respectively. Significant monthly differences were observed in Uda ($p < 0.01$) and Balami ($P < 0.05$). Of the 28,321 goats slaughtered, the contributions of Sokoto Red, Kano brown, Sahel and West African Dwarf were 20,265; 7,469; 575 and 12 respectively. There were significant differences within Sokoto Red and Kano Brown ($p < 0.01$) and Sahel ($p < 0.05$) breeds. The study showed that goat species especially Sokoto Red contributed the highest numerical value of all live livestock species slaughtered as sources of meat in Bauchi. This should have a bearing on their production.

Keywords: Livestock, contribution, meat

Introduction

Livestock production is an important segment of the world food industry (Anonymous, 1979). The primary aim of keeping any livestock species is for the provision of meat, milk, wool and hide/skin. The meat produced by livestock is a dependable source of animal protein and it is also an important part of the diet of most people (Davies, 1969; Lawrie, 1991).

In the tropics, the bulk of meat is derived from cattle, sheep, goat, pigs, deer, antelopes, rabbits, rats, squirrels, elephants, camels and some mammalian animals, domesticated or wild poultry. Also snails, and insects are consumed (Ihekoronye and Ngodely, 1985). Anthonio (1982) stated that Nigerians eat a wide variety of meat and poultry than Europeans and Americans in addition to the usual beef, pork, sheep, goats and poultry including undomesticated animal. Similar to what is obtained elsewhere in northern Nigeria,

the meat obtained in Bauchi is mostly derived from cattle, sheep and goats. But little is obtained from undomesticated animals. While the contribution made by the various livestock species in the developed world is well known, not much is known about the contribution of our local cattle, sheep and goats. There is, particularly, lack of documentation of data or evidence of each species contribution as source of meat in Bauchi.

The aim of the present study was therefore to investigate the level of contribution of the different livestock species in Bauchi slaughtered at the abattoir for a period of four months. The investigation into the contribution of different species as sources of meat is important in prioritising the livestock species that require more management attention. Possible suggestions would also be given to make for more meat production to meet the protein need of the ever-increasing Nigerian populace.

Materials and Methods

Location and climate

Bauchi town is located at latitude 10°17' north, longitude 8°49' east and at altitude of about 690.2 metres above the sea level. It covers an area with average rainfall of 1091.4mm annually. The month of April is the hottest (40°C) and the coldest months are December and January (15.11 and 12.2°C respectively). The mean maximum temperature is 32.29°C and minimal 18.33°C (Kowal and Knabe, 1972). The climatic condition of Bauchi exhibited two marked seasons, the dry and rainy seasons (October to May and June to September respectively).

Soil and vegetation

The vegetation of Bauchi has been described by Akwuchi (1990). It is made up of open Savannah woodland with trees up to six meters high while the spaces between are occupied by

herbs layer of non-woody species up to 3 meters high. The grasses are generally green and nutritive during the rainy season, but brown and low in quality during the dry season (Butswat, 1994).

The soil in Bauchi has been described as Ferrogenous with sandy parent materials and are of high fertility but its susceptibility to erosion and drought has limited its maximum utilization for crop production (Agboola, 1979). Both the seasons and soil which affect the vegetation, will influence the type of livestock in the environment, which are then among those to be slaughtered as sources of meat.

Source of data

The data for this study were collected from Bauchi township abattoir. It is located at Inkil village about 8km from the University at the eastern side of the town, along Gombe road.

The animals used were species of cattle, sheep and goats of different breeds. These were obtained mostly from surrounding markets and small-scale holders. The animals were also purchased from nomadic Fulani and peasant farmers.

The management system is mostly traditional and this ranges from free range grazing and browsing with little or no supplementary feeding during the non-cropping period to tethering with zero grazing during the cropping seasons. Few of the rams were fattened occasionally and slaughtered at the abattoir.

Data collection

A total number of 35,846 animals were studied as they enter the slaughter house. Of these figure 2,151 were cattle; 5,373 sheep and 28,321 were goats. All the observed animals were slaughtered at the Bauchi township abattoir. The study lasted for a period of four months (June to September, 1995). The data

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were collected on a daily basis throughout the study period.

Data analysis

The data were subjected to chi-square method of statistical analysis (Humburg, 1977) using months and breed as factors, while simple percentages were used on other relevant measurements.

Results

The monthly distributions of various livestock species are as presented in Table 1. From the Table, 2, 151, 5, 373 and 28,321 cattle, sheep and goats were slaughtered respectively. The distribution of these species can be seen graphically in Fig. 1. From the graph, in terms of numerical strength, goats contributed the highest percentage (79.01) followed by sheep (14.99) while the least was cattle (6.0). The trend of distribution was the same for all months of study. Table 1 also shows that the highest number of animals slaughtered was in the months of July, (10, 188) followed by August (8,888) and the least was in September, (7,975). The results indicated highly significant differences ($P < 0.01$) in the monthly contribution of all species. Details of the contribution of various breeds within the species are as represented in Table 2.

The contribution of cattle can be seen in Table 2 where the White Fulani (5.18%) ranked

highest followed by Red Bororo (0.47%) and subsequently Sokoto Gudali (0.33%) while the least contribution was from Kuri breed (0.02%). This has been represented graphically in Fig. 2. From the graph, in all the months the White Fulani had the highest percentage of the total cattle breeds slaughtered, while Kuri was the least and others were distributed between their ranges. The results revealed that there were significant monthly differences ($p < 0.01$) within the breed of Red Bororo cattle (Table 2).

Table 2 also shows the distribution of slaughtered sheep breeds. From the Table it can be observed that Yankasa was the highest (3,960) breed slaughtered followed by Balami (1,062), Uda (232) and unidentified crosses (119) respectively. The graphical representation (Fig. 3) showed that Yankasa had the highest percentage range from 70.47 to 76.30 of the total sheep slaughtered. This was followed by the bar of the Uda which was less than 2.5 in the first two months and slightly increased in the last two months. The third bar represented Balami breeds distribution which was much higher than Uda with the least in August (6.82%), highest in July (21.14%) and least in unidentified breeds or crosses. Statistical analysis showed significant monthly differences ($P < 0.05$) in Uda and Balami breeds contribution (Table 2).

Table 1 Monthly contribution of various livestock species as sources of meat

| Months | Cattle | Sheep | Goats | Totals | 8 | DF | X ² value |
|-----------|--------|-------|--------|--------|----------|----|-------------------------|
| June | 586 | 1,350 | 6,859 | 8,795 | 2,931 | 2 | 7,991.77 ^{xx} |
| July | 519 | 1,294 | 8,373 | 10,188 | 3,396 | 2 | 11,029.94 ^{xx} |
| August | 482 | 1,343 | 7,063 | 8,888 | 2,962.67 | 2 | 8,637.40 ^{xx} |
| September | 564 | 1,386 | 6,026 | 7,915 | 2,658.34 | 2 | 6,460.56 ^{xx} |
| Total | 2,151 | 5,375 | 28,321 | 35,846 | | | |

DF = Degree of freedom
 8 = Means of the values
 ** = Significant at $p < 0.01$
 x² = Chi-square value

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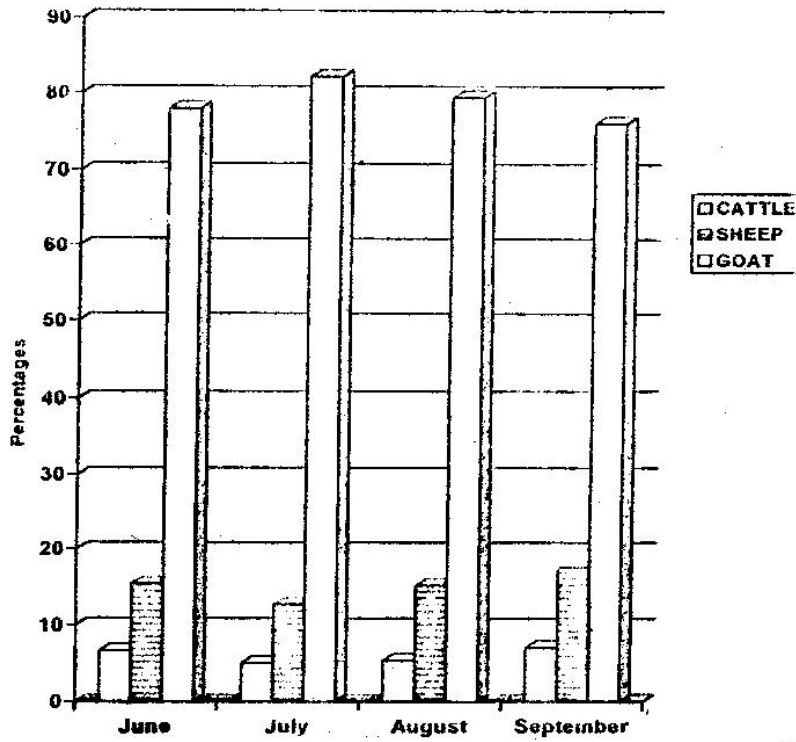


Figure 1 Monthly contribution of various livestock species as sources of meat

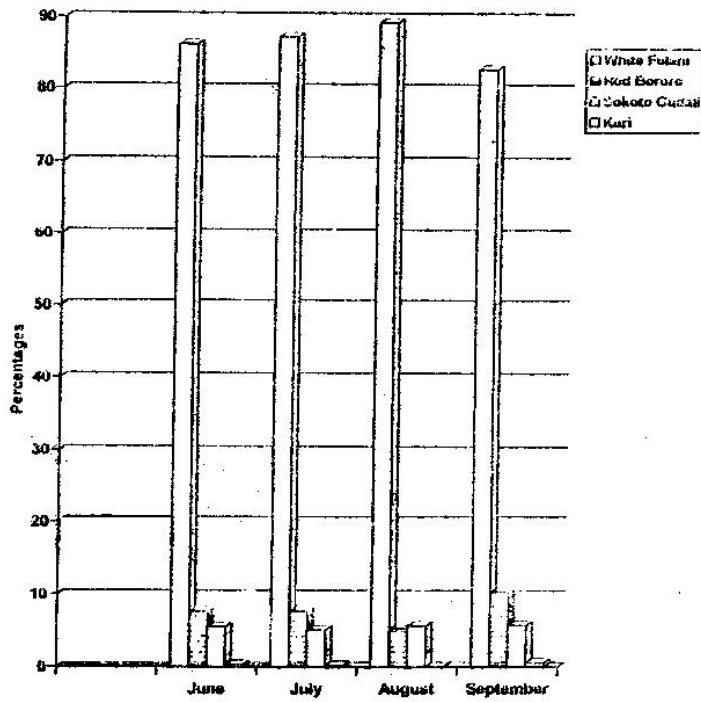


Figure 2 Monthly distribution of cattle breeds slaughtered

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The distribution of goat breed can be seen in Table 2. Sokoto Red gave the highest (20,265) numerical value, followed by Kano Brown (7,469), Sahel breeds (575) while the West African Dwarf had the least contribution. The graph in Fig. 4 illustrates the pattern of goat breeds slaughtered. From the graph, the pattern revealed that the highest were contributed by the Sokoto Red, followed by the Kano Brown, Sahel breeds, while the least was the West Africa Dwarf. Table 2 also indicated highly significant monthly differences ($P < 0.01$) between Sokoto Red and Kano Brown breeds. Significant differences ($P < 0.05$) were observed also between Sahel breeds while the contribution of West African Dwarf was not significant ($P > 0.05$).

Discussion

The contribution of various livestock species as source of, meat in Bauchi was represented by 6, 15 and 79 percent of the slaughtered cattle, sheep and goats respectively. The results indicate that goats were the most favoured species in terms of number of livestock consumed as meat. This agrees with the findings of Jal and Padda (1984) in India where they reported 35%, 14% and 8% for goat, sheep and cattle respectively. These high slaughter of goats for meat may be attributed to their wholesomeness and relished meat (Uguru, 1984) and valued skin (Aganga and Fasanya, 1985) even though the wholesomeness may not be peculiar to only goat meat.

A wide range of contribution between the breeds and the species of animals slaughtered was observed. This may be due to the uneven distribution of the livestock within the ecological zones in the country. It is also a well known fact that some breeds of livestock are more adapted to one area than the other (Adu and Lakpini, 1983 and Lufadeju *et al.*, 1995). The factors responsible are differences in rainfall and relative humidity as well as the resultant seasons which influence both

availability of feeds, system of husbandry and incidence of pests and diseases. These affect the availability of these animals for slaughter in a particular locality.

The study depicted a higher slaughter figure of animals in July than the rest of the months as similarly reported by Sanda (1995, Personal communication). This might be attributed to increased need for more funds to finance farming activities leading to sales of small ruminants and their subsequent slaughter. It might also have been due to a small Sallah festival that took place that month. Devendra and Bruns (1987) stated that goat production meets the special needs of low-income farmers. They observed in the peninsular of Malaysia, among the low-income farmers that about 35% of their respondents sell goats in the period of cash shortage. This might similarly apply to the low-income farmers in Bauchi.

Cattle are the most important livestock species in Nigeria in terms of their supply of human needs and services and proportionally contribute the highest meat consumed in the country (Olubanjo, 1976). The study revealed that White Fulani breed of cattle contribute the highest proportions of meat consumed. This has been attributed to their wide range of distribution, numerical strength as well as ready availability in the study area. A higher contribution of White Fulani than the other cattle breeds in Bauchi as sources of meat had been earlier reported by Alalade (1992). In contrast, Kuri contribution was the least and this may be due to the fact that Kuri breed has not been surviving well outside its natural habitat, Lake Chad Basin and neighbouring areas (Akinsanmi, 1985).

The result also shows a significant monthly difference ($p < 0.01$) in the contribution of Red Bororo compared with the others. This may be associated with the nomadic life of Bororo Fulani who are the sole owners of this breed of

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Table 2 Effects of month on breed distribution within species of animals slaughtered

| Months | CATTLE | | | | | | | | | | SHEEP | | | | | GOATS | | | | |
|----------------|--------|--------|---------------|--------|------|----------------------|---------|--------|--------|--------|-------|----------------------|------------|------------|-------|--------|------|----------------------|--|--|
| | White | Red | Sokoto Gudall | Kuri | D | X ² Value | Yankasa | Uda | Balami | Others | Df | X ² value | Sokoto Red | Kano Brown | Sahel | WAD | Df | X ² value | | |
| June | 508 | 44 | 32 | 2 | 3 | 1195.79 | 1030 | 26 | 272 | 22 | 3 | 2016.06** | 4847 | 1842 | 166 | 4 | 3 | 8835.06 | | |
| July | 453 | 39 | 26 | 1 | 3 | 1714.68** | 943 | 30 | 283 | 38 | 3 | 1714.68** | 6001 | 2200 | 171 | 1 | 3 | 11155.7 | | |
| August | 466 | 27 | 29 | 0 | 3 | 1917.79** | 1010 | 74 | 226 | 33 | 3 | 1917.79 | 4908 | 2002 | 150 | 3 | 3 | 8616.67 | | |
| Sept. | 469 | 59 | 32 | 4 | 3 | 456.34** | 977 | 102 | 281 | 26 | 3 | 456.34** | 4509 | 1425 | 88 | 4 | 3 | 8822.64 | | |
| Total | 1856 | 169 | 199 | 7 | 3 | 3960 | 3960 | 232 | 1062 | 119 | 3 | 20.265 | 20.265 | 7.469 | 575 | 12 | 3 | 8822.64 | | |
| | (5.18) | (0.47) | (0.33) | (0.02) | | (11.05) | (11.05) | (0.65) | (2.96) | (0.33) | | (56.53) | (20.84) | (20.84) | (1.6) | (0.04) | | | | |
| X ² | 7.6 | 12.47 | 1.07 | 2.0 | 2.0 | 4.26 | 4.26 | 68.1 | 8.09 | 2.95 | | 258.82 | 174.11 | 174.11 | 30.5 | 3.05 | 2.0 | | | |
| | N.S. | ** | N.S. | N.S. | N.S. | N.S. | N.S. | ** | * | N.S | | ** | ** | ** | ** | * | N.S. | N.S. | | |

Figures in parenthesis are percentages:

- X² = Chi-square value
- DF = Degree of Freedom
- ** = Significant at P<0.01
- * = Significant at P<0.05
- NS = Not Significant

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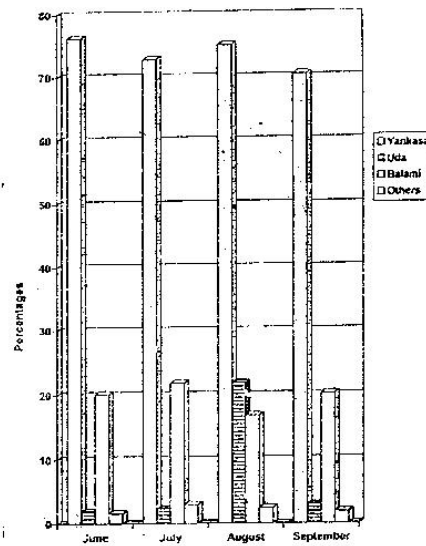


Figure 3 Monthly distribution of sheepbreeds slaughtered

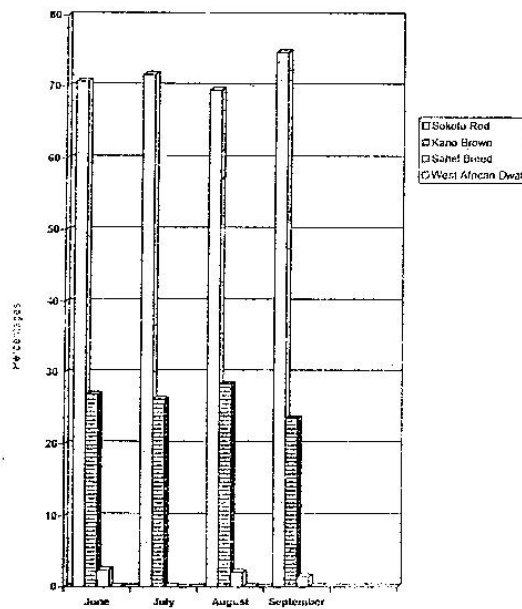


Figure 4 Monthly distribution of goats breed slaughtered

cattle. The Bororo always move from one place to another in search of pasture for their animals (Bukar, 1984) hence the highly significant monthly distribution, because this month they are in one place, the next month they have moved to another and are no more available for sale and slaughter.

The contribution of sheep as sources of meat can be clearly seen in Figure 4, the contribution of Red Bororo compared with the others. This may be associated with the nomadic life of Bororo Fulani who are the sole owners of this breed of cattle. The Borors always move from one place to another in search of pasture for their animals (Bukar, 1984) hence the highly significant monthly distribution, because this month they are in one place, the next month they have moved to another and are no more available for sale and slaughter.

The contribution of sheep as sources of meat can be clearly seen in Figure 1, the result is skewed in favour of Yankasa breed. This was also reported by Alalade (1992). The result shows a variation in contribution of Uda as source of meat. The observed variations may also be attributed to the fact that Uda breed is more adapted to extensive system of management (Akinsanmi, 1985). Thus they are mostly owned and managed by nomadic Fulanis who are characteristically constantly on the move, while Balami breeds are mostly owned and managed by settled Fulani and peasant Hausa farmers. The supply of these animals to market and subsequent slaughter in the abattoir, may be influenced by such factors as economics, social and religious factors.

Despite the large contribution of Sokoto Red as a source of meat, it also serves as a source of foreign, exchange earning for the nation because of its high quality skin (Aganga and Fasanya, 1984 and Oshosanya, 1995). Kano Brown closely followed Sokoto Red both in

number and characteristics. West African dwarf goat made the least contribution compared to the other breeds. This may be attributed to the fact that West African Dwarf are best adapted to the humid zone of the country (Otchere and Kallah, 1985).

Marked differences have been observed in the monthly contribution of Sokoto Red and Kano Brown. The results show that the peak is in July. This month falls within the farming period. Demand for additional funds to hire persons to supplement family labour on the farm might have necessitated sales of these animals and their subsequent slaughter. This variation has also been observed in the contribution of Sahel breeds. The trans humans nature of the predominant owners of this Sahel breeds (Bukar, 1984) might have made it such that the breeds will be available one month for slaughter, and the next month, they might have changed location.

Conclusion

In order to produce sustainable and adequate meat supply for the ever-increasing Nigerian populace throughout the year, goat, especially Sokoto Red production should be encouraged. This is because the meat is more cherished and have short generation interval, higher prolificacy, hardiness, moderate body size, as well as highly valued skin and ability to survive harsh environmental conditions.

To this end therefore, research into the improvement of production of goats should be intensified so as to increase vigour and other special qualities of the animals.

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