

Survey of Household Food-Animal in Atbara Town, Nahr El Nil State, Sudan

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Abstract

A questionnaire survey of household food-animals was carried out in Atbara town; Nahr El Nil State during Summer, 1995. Most of the respondents were males (73%) within the age range between 20-60 years (93%) and educated (97%). Goats, chickens, sheep, and pigeons were the dominant animal species raised in households in Atbara. The results of the survey also indicated that household feed animals are mainly raised to meet household own consumption. Constraints to household food animal raising in Atbara town (e.g. housing, feeding, disease problems) were discussed.

1 Introduction

Atbara with an estimated population of around 100,000 inhabitants is considered as the largest town in Nahr El Nil State, Northern Sudan. It is also considered as one of the major industrial centres in the country. Veterinary services are also well established in Atbara and include a veterinary hospital, a slaughter house, a dairy farm, a poultry farm, and a regional veterinary research laboratory.

The majority of Atbara town inhabitants are industry labourers in the low-income group. People in this town are thus used to raising food-animals

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such as goats, chickens... etc. in households to provide for some of the milk and meat requirements and as a source of extra income. Therefore household animals are thought to play an important role in food security and income generation for many families.

The present study aimed to survey and analyse information collected as regards household food-animals raising in Atbara town and to investigate problems and constraints of household animal raising in an urban setting in Northern Sudan.

2 Materials and Methods

This survey was carried out during Summer (May - June 1995). It was conducted by means of a structured questionnaire administered to a total of 250 households in thirteen neighbourhoods in Atbara town. Aspects covered by the questionnaire were demographic data on the respondents, source of animal stock, management system (housing, feeding, watering, and health care), and constraints to household food-animal raising. The numerical aspects of the information gathered were analysed using means, percentages, and ranges.

3 Results

3.1 Demographic Data

Only 119 (47.6%) of the 250 questionnaires administered were returned. Most of the respondents (94%) were within the age range between 20-60 years. No respondents were under 20 years old while 6% were over 60 years old, Table (1). Eighty seven (73%) of the respondents were males and 32 (27%) were females.

A high proportion (97%) of the respondents have had formal education and only 2.6% were illiterate, Table (2). Fifty five (46%) of the respondents were government employees, 43 (36%) were from private sector, and 11 (9.3%) were housewives.

3.2 Types of Animals Raised in Households

Types and combinations of types of animals raised in households in Atbara town are shown in Tables (3) and (4) respectively. Goats, domestic chickens, and sheep were the major food-animal species raised, Table (3). Goats and chicken were the only singly raised animals with 25.5% and 3.4% of the respondents reporting raising these two animals species in their households respectively, Table (4). On the other hand, 48.9% of the respondents indicated raising two species of animals. Of these goats and chickens (29.4%) was the dominant combination. Furthermore, 14.2% of the respondents indicated keeping three animal species while 8.4% of the respondents reported raising four animal species in households, Table (4).

3.2.1 Goats

Goats were the most frequently owned animals in Atbara town. A hundred and four (87.3%) of the respondents indicated raising this animal species, Table (3) and (4). The goat population, distribution and numbers per household are shown in Table (5) and (6) respectively.

The herd size per household ranged between 1 to 13 goats with an average of 3.8. A large proportion of respondents (69.8%) owned between 1-4; 24.1% owned between 5-7; while only 6.1% owned more than 8 goats per household, Table (6).

Most (97%) of the goats raised in households in Atbara town are the indigenous Nubian Type. Accordingly milk production from these animals is low, Table (7). A large proportion (84.5%) of the animals produced between 0.5 – 2lbs of milk per goat per day. 89% of the respondents indicated using goat milk for own consumption; only 2.5% reported selling milk for cash. Milk is usually used fresh; however, few respondents (8.5%) indicated using it for manufacturing other milk products (e.g. rippen milk, cheese, and youghrt).

Most of the respondents (79.0%) dispose off their surplus goats by selling them, while 38% of the owners slaughter them for meat during cermonies and religious festivals.

The major disease symptoms in goats reported by the respondents are shown in Table (8). Diarrhoea, emaciation, tympany, pneumonia, and mastitis represented major complaints of goat owners.

Constraints to goat keeping as indicated by the respondents in Atbara

town are shown in Table (5). Feeds and feeding, lack of capital, and housing were the major constraints.

3.2.2 Chickens

Domestic chickens were the second most frequently raised food-animals species in household in Atbara town Table (3) and (4). Both indigenous (50%) and exotic (50%) breeds of chicken are raised in households. Table (10) shows the size and percentage distribution of chicken flocks in households in Atbara town. 51% of the respondents raised less than 10 chickens per household; 42% of the respondents raised between 10-40 birds; and larger size flocks (100-150 birds) were few and representing only 5.4% of the chicken flocks in households in Atbara.

Most (98.2%) of the respondents indicated using eggs produced for household consumption. Only 2% of the respondents indicated selling eggs for cash.

3.2.3 Sheep

Sheep represented the third major animal species raised in households in Atbara town, Table (3) and (4). The population and percentage distribution of sheep in this study are shown in Table (11). 90% of the respondents owned between 1-3 animals per household, and no respondents owned over five animals, Table (12).

Milk production from ewes is low and most of the milk produced is used for household consumption (data not shown). As is the case with goats, sheep owners dispose off their animals either by selling them for cash (60%) or by slaughtering (50%) during ceremonies and religious festivals.

The disease symptoms observed by sheep owners are listed in Table (11). Diarrhoea, pneumonia, emaciation, external parasites (ticks and lice) and impaction were the major disease conditions reported by these owners.

3.2.4 Others

These include pigeons, cows, ducks, geese, rabbits, and turkeys. Pigeons were the most prevalent of these auxiliary household animal species being raised in 15 (12.5%) of the household surveyed. On the other hand, ducks and cows were raised in 4 (3.4%) and 2 (1.6%) of the households respectively while

geese, tukeys, and rabbits were each raised in 1 (0.8%) of the household surveyed.

3.3 Animal Housing and Feeding

All respondents indicated providing some pens or shelter, feeds and water for their animals. 102 (89.5%) of the animal pens were built inside owner's houses, and 12 (10.5%) were built outside adjacent to owner's houses. Pens are built using mud (45%), metal cages (41.6%), red bricks (22%) or trees branches and straws (12%).

3.4 Source of Stock

A large proportion (82.9%) of the respondents acquired their stock by purchases; 18.9% acquired them as gifts from friends and relatives while 13.5% inherited them from parents.

3.5 Health Care

Most of the respondents were aware of the veterinary services offered in Atbara area. Hence 91% of the respondents reported seeking veterinary advice when their animals were sick. However, 35% of the respondents indicated homemade-remedies to treat sick animals.

4 Discussion

Most of the Atbara town residents still have their roots in the rural areas of the Sudan where household keeping of animals is an economic as well as a social necessity. In addition, the recent uncontrolled inflation in prices of food items of animal origin (milk, eggs, meat, ... etc.) would, no doubt have encouraged some city dwellers to turn to household raising of animals in order to meet part of their needs for these animal products. The hot climate of the Sudan also dictated that houses, both in urban and rural areas, be designed to include large open spaces (Hoosh) that are used for sleeping for the greater part of the year. This might make securing a place for keeping few animals inside houses a minor concern.

Most of the respondents in our study were males. This may probably be due to the fact that men are the head of households in the Sudanese society. Furthermore, most of the respondents have had some sort of education.

The present investigation revealed that the major household food animals raised in Atbara (in order of importance) were goats, chickens, and sheep. This was not unexpected, since goats and sheep - because of their small size and high reproductive rates - are preferred to large ruminants in Africa. In addition these animals require relatively little capital investment and can be managed by sparse family labour [1], [2]. Furthermore, goats milk is favoured to other types of milk in Northern Sudan [2]. Eggs are also becoming a fixed item in the sudanese diet probably as a substitute for other sources of animal protein.

The average herd size (3.8 per household) of goat was unexpectedly large. This could, however, be explained by the fact that household needs to have continuous supply of milk, therefore there has to be several animals in different stages of lactation. It might also be possible that the keeping of several goats is feasible and is cost effective [4]. No attempt was made to probe this latter issue and might warrant further investigation.

This study also revealed the low milk yield of the local goats in this area. This may be attributed to inadequate feeding, poor management, tropical heat, disease problems and lack of organised efforts at genetic improvement [4]. It is therefore expected that the prospects of introducing crosses of foreign breeds will have a measurable impact on milk productivity of local goats.

The major disease syndromes of goates reported by the owners (diarrhoea, emaciation, pneumonia, and mastituts) in the present study were comparable to those reported in Ref. [3] in Edamer Province. However in the latter study, pneumonia figured out as the most prominent of goat diseases in this area. This difference might be explained by the fact that the present survey was carried out over a limited period (summer); consequently the responses of the oweners might have been influenced by what they had actually seen during that specific period.

Of the several constraints to household goat raising reported by the respondents in the present study, Table (9), feeds and feeding would in our opinion persist as the major constraint to goat keeping in Atbara town. This is due to the fact that arable lands available for fodder production in this area are limited. It is also faced with an ever increasing competition from needling

to grow vegetables and other crops for human consumption.

Baladi (indigeneous), and several exotic breeds of chickens are now raised in Atbara town. However, the high prices of exotic breeds of chickens have led some owners to attempt crossbreeding on their own on the assumption that crosses would result in birds with better egg productivity. The result also indicated that household raising of chickens has not yet become a popular task in Atbara town. Intense extension programs as well as providing exotic chicks at affordable prices may help alter this picture. However, our own experience would indicate that diseases and lack of proper management (feeding, housing, ... etc.) would be the major constraints for expanding chicken population in this area [3]. Some serious disease condition such as Newcastle disease, Mareks, coccidiosis, tape worm infectious and vitamin A and E deficiencies are widespread in this area [3]. Hence any attempts at successful breeding of chickens for commercial purposes in Atbara region would require close veterinary supervision.

In Sudanese society, sheep are traditionally used for their meat. This is reflected in the higher percentage of males in sheep flocks as compared to those seen in goat herds in the present survey, Tables (5) and (6). Ewes are mainly raised for their offspring, however their milk (when consumed) will be largely used for household consumption.

Malignant ovine theileriosis is a serious problem of sheep in Edamer Province [3]. However, this was not reflected in the responses of sheep owners in the present survey. Only (3.5%) reported jaundice in their animals. Once more, the limited time frame of this survey might have influenced the responses of the owners or otherwise sheep raised inside houses are less prone to infection by tick vectors of ovine theileriosis. Other sheep diseases mentioned by the respondents were comparable to those reported in Ref [3].

An appreciable proportion (12.6%) of the respondents in the present survey raised pigeons in their households. Pigeons are usually raised for meat, but may also be sold for cash or raised as a hobby. Pigeons are easy to keep and do not require as much supervision as do other household animals.

Trichomoniasis is a major disease problem of pigeon squabs in this area [3]. Recently however, ND virus was isolated from disease outbreaks in pigeons with nervous manifestations in Atbara town (S. M. Kher, personal Communication, 1994).

Other avian species (ducks, geese, and turkey) do not seem to be popular in Atbara town and are generally considered as exotic in the area.

Most of the respondeents were aware and not used the veterinary services offered in Atbara town. It is, however, of growing concern that recent surge in cost of such services may compel some owners to revert more frequently to homemade remedies, use subtherapeutic doses of drugs, or postpone the treatment of their animals till they are seriously ill.

Although the public health impact of household raising of food animals in an urban setting is not within the scope of the present study, this issue should deserve some thoughts. Zoonotic diseases and disposal of waste products of household animals could raise some concern for the public health authorities.

5 Conclusions:

Several species of food-animals are raised in households in Atbara town. The most important of these are goats, chickensm sheepm and pigeons. Household food-animals and their products are largely used for household own consumption and as such they play an important role in food security for many families.

Several constarints to household raising of food animals in Atbara town were identified. Well orgonized vererinary extension programmes, genetic improvement programes, disease control programes and close veterinary supervision could, howver, help alleviate these problems and make household food-animals an attractive enterprise.

References

- [1] Ademosun, A. A., "Constraints and prospects for small ruminant research and development in Africa". In: Lebbic, Rey, and Irungu (eds), Small ruminant research and development in Africa. ILCA, CTA Addis Ababa, Ethiopia, 1994, pp1-6.
- [2] AOAD, "Goat resources at Arab States II-Sudan", AOAD printing press, ACSAD, Syria, 1990
- [3] A. El Ghali and A. M. El Hussein, "Diseaes of livestock inEdamer Province, Nahr El Nil state, Sudan: a two-years retrospective study", Sud. J. Vet. Sci. Ani. Husb., 1995 (in press).

- [4] A. Gamal, "Use of molasses-based ration for lactating Nubian goat", M.Sc. Thesis, University of Khartoum, Sudan, 1995.
- [5] Regional Vet. Res. Lab. Records (1992-1995), Atbara, Nahr El Nil State, Sudan.

Table (7)

Epidemiological Status of The Region

Year	Number of Cases	Location
1992	12	Atbara
1993	15	Atbara
1994	18	Atbara
1995	20	Atbara
Total	65	Atbara

TABLE (1)

Age Distribution Of The Respondent

Age (Years)	No.	%
20 - 30	15	12.9
31 - 40	33	28.4
41 - 50	38	32.7
51 - 60	23	19.8
61 - 70	6	5.1
71 - 80	1	0.8

Table (2)

Educational Status Of The Respondent

Education attained by the respondent	Frequency	%
No formal education	3	2.6
Primary School	42	35.9
Secondary School	18	15.4
Tertiary School	30	25.6
Higher Education	24	20.5
Total	117	100

Table (3)

Food-Animals Raised in Households in Atbara town

Species of Animals Raised	No. of (*) respondent	% (**)
Goats	104	87.4
Chickens	73	61.3
Sheep	36	30.2
Others (***)	28	23.5

(*) Total No. of respondents is 119.

(**) Total No. > 100% due to multiple responses.

(***) Include pigeons, ducks, geese, turkeys, cattle and rabbits.

Table (4)

Species & Combination of Species of Households
Animals in Atbara Town

Animal Species	No. of respondents	%
Goats	30	25.2
Chickens	4	3.4
Sheep and Goats	9	7.7
Sheep and Chickens	5	4.2
Goats and Chickens	35	29.4
Goats and Others (*)	4	3.4
Chickens and Others	5	4.2
Sheep, Goats and Chickens	8	6.7
Sheep, Goats and Others	3	2.5
Sheep, Chickens and others	1	0.8
Goats, Chickens and Others	5	4.2
Sheep, Goats, Chickens & Others	10	8.4
Total	119	100

(*) Include pigeons, ducks, geese, turkeys, cattle and rabbits.

Table (5)

Population and % Distribution of Gats Raised
in Households in Atbara Town

Details	No.	%
No. of respondents	96	-
No. of matured females	238	65.7
No. of matured males	34	9.4
Sex ratio Males: Females	1:7	-
No. of immatures	90	24.9
Total	362	100

Table (6)

Herd Size Frequencies & % Distribution of
Households Goats in Atbara Town

Herd Size	Frequency	%
1	11	11.5
2	26	27.1
3	18	18.8
4	12	12.5
5	9	9.4
6	7	7.3
7	7	7.3
8	4	4.1
10	1	1.0
13	1	1.0
Total	96	100

Table (7)

Milk Yield of Household Goats in Atbara Town

Average daily yield (lb)	Frequency	%
0.5 - 1	39	46.4
> 1 - 2	32	38.1
> 2 - 3	8	9.5
> 3 - 4	2	2.4
> 4 - 5	2	2.4
> 5	1	1.2
Total	84	100

Table (8)

Disease Symptoms Observed by Goat Owners
In Atbara Town

Disease Symptoms	No. of respondent	% (*)
Diarrhoea	40	37.3
Emaciation	31	29.0
Tympany	22	20.5
Pneumonia/ respiratory	20	18.7
Mastitis	19	17.7
External parasites (Lice-Ticks)	14	13.0
Hair loss	14	13.0
Dystocia	12	11.2
Foot problems	6	5.6
Eye infection	6	5.6
Paralysis	5	4.7
Impaction	4	3.7

(*) Total > 100% due to multiple responses.
Total No. of respondents is 107.

Table (9)

Constraints To Household Goat Keeping
In Atbara Town

Constraint	Frequency	% (*)
Feeds and Feeding	71	75.5
Lack of Capital	63	67.0
Housing	60	63.8
Diseases	12	12.8
Theft	11	11.7

(*) Total > 100% due to multiple responses.
Total No. of respondents = 94

Table (10)

**Flock Size Frequency & % Distribution
Of Chickens Raised In Household in Atbara Town**

Flock Size	Frequency	%
1 - 9	28	51.0
10 - 20	11	20.0
21 - 30	7	12.7
31 - 40	5	9.1
50 - 60	1	1.8
100 - 150	3	5.4
Total	55	100

Table (11)

**Population and % Distribution of Sheep in
Household in Atbara Town**

Details	No.	%
No. of respondents	30	-
No. of ewes	28	39.4
No. of rams	37	52.1
Sex ratio (Rams : Ewes)	1:3	1
No. of immatures	6	8.5
Total	71	100

Table (12)

**Flock Size Frequency & % Distribution of Sheep
Raised in Households in Atbara Town**

Flock size	Frequency	%
1	12	40
2	5	16.7
3	10	33.3
4	2	6.7
5	1	3.3

Table (13)

Disease Symptoms Observed by Sheep Owners
in Atbara Town

Disease Symptoms	No. of Frequency	% (*)
Diarrhoea	10	37.7
Pneumonia/Respiratory	7	25.0
External parasites(Lice & Ticks)	5	17.8
Emaciation	5	17.8
Impaction	5	17.8
Wool Loss	4	14.2
Tympany	3	10.7
Eye infection	2	7.1
Paralysis	1	3.5
Jaundice	1	3.5

(*) Total > 100% due to multiple responses.
Total No. of respondents = 28