

THE INDIGENOUS DOMESTIC ANIMAL GENETIC RESOURCES OF UGANDA

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SUMMARY

The author discusses the overall availability and economic role of indigenous livestock resources in Uganda. After a distinct reduction in number during the 80's, there is now an upsurge in the cattle number (4 300 000 in 1991). The better milk yielding Ankole (Songa cattle) represents nearly half of those cattle, while just over 32% are of the zebu short-horn type (mainly the stocky Nkedi and the large framed Karamojong). The remaining 18% are of the non-distinct Nganda type that probably originated the crossbreeding of the Ankole and zebu shorthorns. While there are no exact data concerning crossbreeding with exotic breeds, it is estimated that there are some 30 000 exotic beef and dairy cattle and around 100 000 crossbreeds. The total goat population remained reasonably stable in recent years (3 700 000 of which 2 000 000 are breeding females). The majority (1 500 000) belong to the distinct smallbodied East African goat type (25-30 kg liveweight), the two other distinct populations being those originating in the Mubende (4 230 000) and the Kigezi (930 000) regions. Both are predominantly black coloured, the Mubende being characterized by a short and fine coat hair, the Kigezi being longhaired. All sheep breeds are fat-tailed. The Masai (216 000) is found in the Eastern and Northern part of the country, the Black-head (490 000) in the East and the so-called East African long-tail (257 000) all over the country. The author indicates that there is an indigenous pig type (670 000) and some 1 200 000 "village" chickens.

RESUME

L'auteur présente la disponibilité totale et le rôle économique des ressources en races autochtones d'élevage en Uganda. Après avoir subi une importante diminution dans les années 80, actuellement on assiste à une reprise du nombre des bovins (4 300 000 en 1991). La race Ankole (Songa), avec le meilleur rendement en lait, représente presque la moitié du cheptel, et un peu plus de 32% est représenté par le zébu à courtes cornes (surtout le Nganda et le Karamojong). Le 18% restant r'appartiennent pas au type Nganda et proviennent probablement du croisement entre la race Ankole et le zébu à courtes cornes. Il n'existe pas de données précises sur le croisement avec des races exotiques, mais on considère qu'il y a presque 30 000 bovins exotiques à lait et à viande, et presque 100 000 croisés. La population totale de caprins est restée stable pendant les dernières années (3 700 000, dont 2 000 000 de femelles). La plupart (1 500 000) appartiennent au type de chèvre naine de l'Est de l'Afrique (25-30 kg de poids), et les deux autres populations présentes sont originaires des régions de Mubende (4 230 000) et de Kigezi (930 000). Ces deux races sont nonnalement noire, et la race Mubende se caractérise par son poil court et fin et la race Kigezi par son poil long. Toutes les races ovines ont la queue grasse. La race Masai (216 000) se trouve dans les régions du nord et de l'est du pays, la brebis à tôte noire (490 000) dans la région de l'est, et la brebis à poils longs de l'Afrique de l'Est (257 000) dans tout le pays. L'auteur présente également un type de porc de race autochtone (670 000) et la population de volailles (1 200 000) élevées dans les milieux villageois.

1.0 INTRODUCTION

Uganda is well endowed with Animal Genetic Resources (AGR), the domesticated ones include cattle, goats, sheep, Oigs, dogs, donkeys, chickens, rabbits, etc. The number of species may appear small but they form an important genetic resource that has for long been neglected. The nature and extent of variation existing within our domestic species is not yet well studied and documented. Most important is the fact that our domestic AGR are under threat. According to Masods (1988) world dictionary of livestock breeds, in the last century Uganda has lost 12 breeds of cattle, three breeds of goats and one breed of sheep.

This paper highlights the main AGR of Uganda, describes their evolutionary trends, their production systems and discusses the main factors affecting their population.

2.0 IMPORTANCE OF AGR IN UGANDA

In Uganda, livestock production contributes about 30 percent of the Agricultural Domestic Product and if the value of manure is considered, their contribution rises to about 40 percent.

Uganda is basically an Agricultural Country with over 90 percent of its population actively involved in agriculture.

Interim National Co-ordinator, Animal Genetic Resources' Programme in Uganda Crop-livestock integration is a main system of agricultural production practised by about 20 percent of Uganda's households (UASS, 1986/87), as compared to 1963/64 when only 12.2% of the holdings kept cattle. It is estimated that about three percent of Uganda's households are solely dependent on livestock for a livelihood. On average there were ten heads of cattle per holding although this average varied from 3 to 58 head of cattle. The majority (97 percent) of all the cattle on the holdings in the twenty six districts were indigenous.

TABLE 1

Uganda: Economiic activities of households by geographical zoties

Zone	Others	Percent of households depending on:			
		Livestock	Crops	Mixed	Fishing
Arua	.6	65.1	25.2	3.2	5.9
Jinja	2.1	40.8	15.7	1.3	40.1
Kabalore	2.0	73.2	7.9	2.0	14.9
Kampala	3.6	38.1	13.9	2.4	42.0
Mbarara	2.6	84.2	7.3	.6	5.3
Masaka	4.1	57.2	23.9	1.7	13.1
Mbale	1.9	42.3	40.7	.4	14.7
Mityana	3.5	57.4	20.4	1.1	17.6
26 Distr.	2.8	56.0	18.2	1.5	21.5

Source: UASS (1986/87)

Given that the majority of Uganda's households are peasant smallholder families, the well adapted indigenous AGR are likely to remain a major source of livelihood since such households have limited resources with which to improve the environment adequately to accommodate the high yielding exotic genotypes. Indigenous livestock are a significant source of food, particularly of high protein, minerals, vitamins and micro-nutrients for our ever increasing population. It is estimated (Mbuza, 1991) that indigenous cattle, for example, contribute 75 percent of the total milk production and more than 95 percent of the total beef production of Uganda. It therefore becomes evident that sustainable animal protein production in Uganda is likely to result from

synchronisms the locally adapted genetic resources with the feeding, management and economic resources available. Besides, the indigenous AGR will remain a main source of manure to maintain soil fertility and a ready source of income by selling as need arises.

Recent surveys in Uganda (UASS 1986/87) have shown that there are, for example, some high yielding herds of indigenous (Ankole) cattle @g up to 10 litres of milk a day. This shows that there is still great potential for improving the genetic qualities of our indigenous AGR.

3.0 MAJOR CATTLE BREEDS IN UGANDA

The following are the major indigenous cattle breeds found in Uganda:

- The Ankole Long-Horn (Sanga, Nsagalla)
- The East-African Short-Horn (Zebu)
- The Intermediate, nondescript breeds (Nganda)

3.1 Brood history

A detailed history of the cattle breeds in East and Central Africa is given by Mason and Maule (1960). The Zebu cattle of Past Africa are thought to have originated from Asia (Mahadevan and Parsons, 1970). There is considerable conjecture about the origin of Sanga, but the common view (Shpjer, 1951; Epstein, 1957) is that they are derived from an original cross between Zebu and some hump-less cattle. The short-horned Zebu (ZSH) are predominant in the North and East of the country whereas the Sanga (Long-homed Ankole, ALH) predominate in southwestern Uganda. Along the boundaries of the areas of distribution of these two types there has been considerable interbreeding leading to intermixtures which in most places has led to the emergence of fixed intermediate types such as the Nganda.

3.2 Bmd Morphology

According to Mason and Maule (1960) the three indigenous cattle breeds of Uganda can be differentiated as follows:

FEATURE	ZSH	ALH	NGANDA
Horn length	Short	Long	Intermediate
Hump size	Large	Small	Intermediate
Hump location	Thoracic	Cervico-thoracic	Intermediate
Body frame	Small	Large	Intermediate
Hump composition	Muscular	Musculo-fatty	Intermediate
Leg length	Short	Long	Intermediate

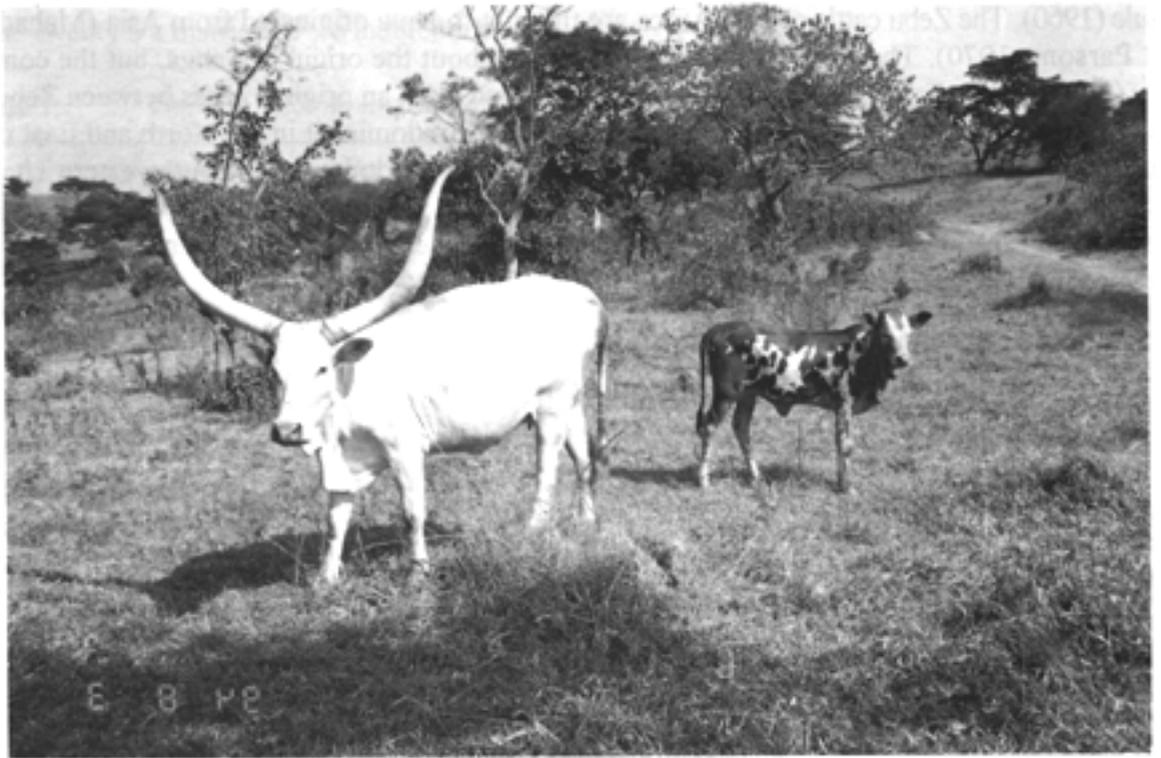
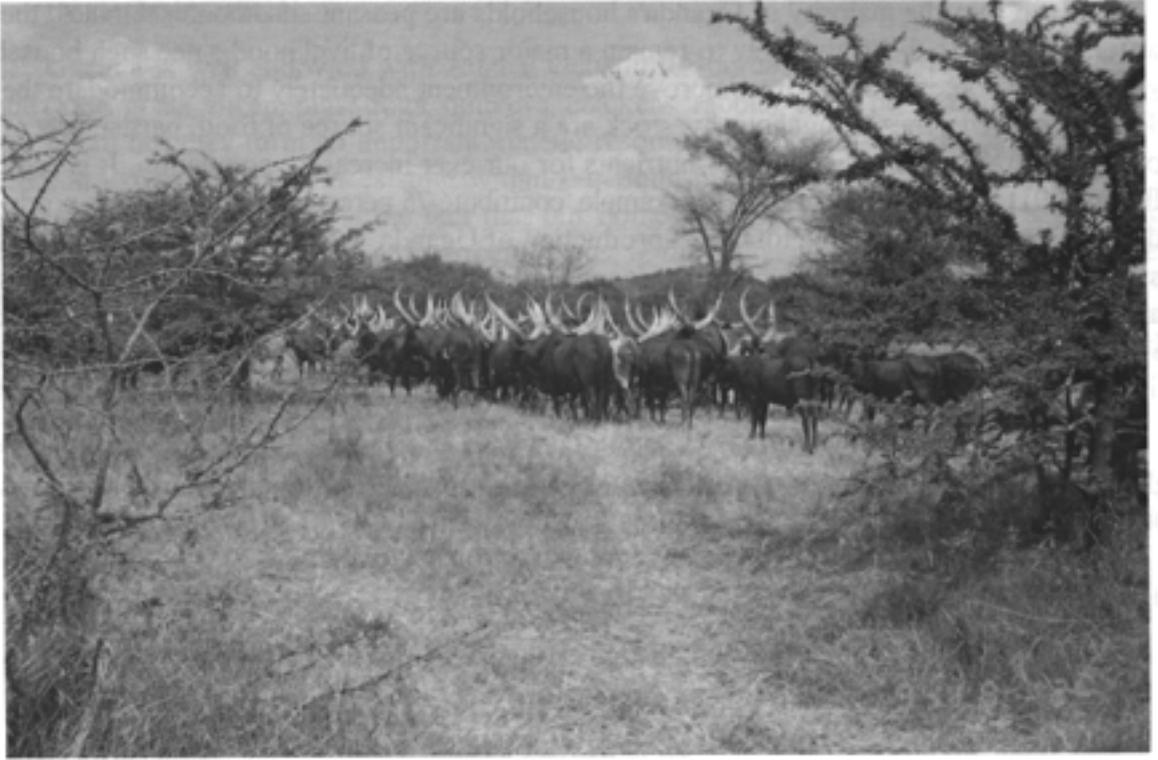
3.3 Intra-breed variations

In Uganda, Sanga are solely represented by the Ankole cattle owned by the pastoral Bahima of Ankole and the surrounding districts such as Kigezi. The Zebu cattle are represented on one hand by the numerous small, stocky, short-homed East African Zebu (commonly called Nkedi) and on the other hand by the larger-frame, short-homed Karamojong cattle.

Within the local Zebus various strains have developed and Ross (1958) for example classified the Zebu cattle of the Teso district into different types by considering variations in conformation, size, colour, ears, dewlap and sheath, humps and horns. The following types were accordingly differentiated namely, Kyoga type, Karamajong type, Serere type and Usuku type. Ross noted that this variation was mainly attributable to cattle migrations, and subsequent interbreeding.

3.4 Evolution trends

Since the beginning of this century, Zebu formed the largest proportion of the cattle population in Uganda (Faulkner and Brown, 1953). By 1960 the Zebu short-horn were estimated at 2 500 000 compared to only 250 000 Ankole type (Mason and Maule, 1960). By that time zebu short-



Long horn Ankole cattle



Small East African Zebu



Nganda cattle

horn was amounting to over 90 percent of the total cattle population in Eastern Uganda and the Eastern province had about 42 percent of the total cattle population in Uganda (1.25 million out of 3 million). The recently concluded National Census of Agriculture and Livestock, NCAL (1991) did not specifically categorize the cattle numbers into their respective breeds. An attempt was however made to establish the age-sex (herd) structures.

Based on the available information and well aware of the geographical distribution of cattle, it is now obvious that the Ankole cattle are the most numerous (49.5%) followed by the Zebu short-horn (3 2.3 %) and Nganda (I 8.2%) in that order as summarised in Table 2.

TABLE 2

Uganda: Population of indigenous cattle breeds

INDIGENOUS BREED	ZSH	ALH	NGANDA	TOTAL
APPROXIMATE POPN.	1392676	2137180	787.291	4317147
PROPORTION OF BREEDING MALES	7.8	4.8	4.9	5.8
APPROX. POPN. OF BREEDING MALES	109.497	102.742	38.944	251.183
PROPORTION OF BREEDING FEMALES	38.3	42.1	39.7	40.4
APPROX. POPN. OF BREEDING FEMALES	532.946	900.140	312.881	1745967

Source: NCAL, 1991

The long-run trend in total cattle numbers over the period 1933 to 1969 was generally upwards at about 2 percent per year (Ferguson, 1971), although there were some annual fluctuations due to floods, droughts, migrations, political unrest, epidemics and price fluctuations. Since 1969, there was a sharp increase in cattle numbers mainly due to successful vaccination campaigns against epidemics such as Rinderpest and the extensive tick control efforts as shown in Table 3.

TABLE 3

Uganda: The cattle population for the period 1945-90

YEAR	CATTLE POPULATION ('000)
1945	2294
1955	3094
1967	3780
1969	4145
1981	5119
1986	3850
1991	4300

Source: EALS 1967; Euroconsult 1983; UASS 1986/87; NCAL, 1991.

Since 1981, Uganda has had a drastic decrease in cattle population mainly because of civil unrest that was accompanied by lack of veterinary care, resurgence of epidemics, wanton slaughter and uncontrolled movement of cattle. The period of civil strife has had a major effect on the indigenous animal genetic resources in that:



Indigenous sheep



Thousands of sheep and goats are raised in the highlands of Papua New Guinea. The animals are often raised in large flocks and are an important source of meat and wool for the local population.



Indigenous sheep and goats

- There has been a general decrease in their numbers due to high mortality rates.
- There has been disturbance in their regional or geographical distribution.
- There has been extensive interbreeding due to uncontrolled movement.
- There has been a reverse in their proportional distribution. The Zebu short horn which were most numerous have drastically declined.

Besides the war effects, there have been some other main factors that have also greatly affected the populations of our indigenous cattle resources.

3.4.1 CrossBreedingandBreedReplacentent

Although there are no up-to-date statistics to show that the numbers or the herd growth rates for the specific breeds are declining, there are some observations that are strongly suggestive. There was substantial development of commercial ranching in the Ankole-Masaka ranching scheme, in Singo, Acholi and parts of Luwero. Fast growing genotypes such as Red polls, Angus, Charolais and Borans were introduced for crossbreeding with the indigenous types (Trail et al. 1971). Because of the high productivity of the introduced breeds, there has been a growing climate of contempt for the indigenous breeds which are now being considered inferior. Similarly, since 1960, there has been planned introduction of European type milk cattle and use of artificial insemination using exotic semen for the purpose of increasing dairy production. Though the number of exotic and improved (upgraded) cattle is still small, it is increasing as shown in Table 4.

TABLE 4

Uganda: Numbers of exotic and improved cattle (1964-91)

YEAR	PUREBRED CATTLE	GRADE CATTLE
1964 a	4600	2300
1982 b	40988	32973
1987P	37703	72229
1991,	25088	83895

a East African Livestock Survey Vol. 2 1967

b Euroconsult report (1983)

UASS (1986/87)

d NCAL (1991/92)

The effects of crossbreeding are quite noticeable in the Mbarara area which is the home of Ankole cattle, where there has recently been a great increase in the number of improved farms which increasingly require improved or even purebred cattle. The number of improved farms in this area has increased from about 2 000 in 1980 (Euroconsult, 1983) to over 6 000 by 1991 (NCAL, 1991). This drastic increase has created a great demand for high milking cows which as a result are fast replacing the less productive Ankole cattle.

In a study of dairy farms in the areas of Uganda, Mbuza (1991) observed that on evolving dairy farms keeping both indigenous, grades and purebred exotic dairy cattle, the mean disposal rates of indigenous breeds were much higher than for the improved or exotics as shown in Table 5.

TABLE 5*Uganda: Mean disposal rates (%) of the different breed categories by sectors*

	TRADITIONAL SECTOR		IMPROVED SECTOR	
	Locals	Locals	Crosses	Exotics
Heifers	5.4+.14	23.4+.21	5.0+.06	5.02+.32
Cows	5.1+.13	23.3+.19	3.0+.12	3.0+.11
Bulls	35.5+.49	37.7+.31	21.0+.60	47.0+.36

Source: Mbuza (1991)

The main reasons for disposal were commercial offtake, poor growth/production, age and infertility. On improved farms, the exotics were least culled for low production and the indigenous were the most culled.

TABLE 6*Uganda: Culling for low production as a percentage of total wastage oil improved farms*

BREED	NO. CULLED	TOTAL WASTAGE*	PERCENTAGE
Exotics	16	450	3.6
Crosses	71	748	9.5
Locals	191	1026	18.6

* *Excluding Commercial Offlake**Source: Mbuza (1991)*

3.4.2 Interbreeding

Because of the nature of the management systems of our traditional breeds, the unrestricted movement, trade and lack of a breeding policy, there has been extensive interbreeding among the Ankole and the Zebu with the resultant nondescript, intermediate breeds such as the Nganda, Nyoro, Kyoga, etc.

3.4.3 *The Higher* Proirrluction Motive

Evidence available so far (Livestock Sector Review, 1984) indicates that in 1964, there were 10.8 million Ha of available land for grazing in Uganda. However by 1980, the area had been reduced to 5.0 million Ha. The human population however, has increased from about 5 million in 1964 to the current 17.2 million. There is therefore a logical basis for wanting high producing genotypes that will maximize efficiency per unit of land. This attitude is threatening our indigenous breeds to extinction especially if this continues unguided and unabated.

3.4.4 Systematic Bias

The systematic bias imposed on indigenous breeds in Uganda is evident from the process of establishing the commercial beef industry. In the process indigenous cattle breeds were outlawed from the newly established commercial ranches and most important, commercial ranching based on introduced breeds was designed to displace indigenous breeds from their home range-lands after being cleared of tsetse fly (EALS, 1967).

3.5 Specific uses of indigenous cattle breeds

The specific uses to which the different cattle breeds are put depend mainly on the socio-economic attributes of the communities keeping them. There are therefore, some relative differences in the values attached by the different communities to their cattle, as summarised in Table 7, resulting from interviews from people in the involved communities and scoring accordingly.

TABLE 7

Uganda: The relative uses of cattle breeds

COMMODITY	Relative Importance (Score scale 0 - 100)		
	CATTLE BREED		
	Ankole	Zebu	Nganda
1. Food - milk	90	60	70
- meat	40	40	20
- blood	5	5	0
- urine	0	5	0
- Ghee	60	10	0
2. Commercial sales	40	50	90
3. Draught power	0	60	0
4. Hides - sale	60	60	80
- cloth,bedding,carpet	20	5	7
- food	5	10	0
- musical gadgets	20	20	20
5. Cow dung			
- manure	30	30	80
- building material	30	20	10
6.Social service			
- dowry	80	80	2
-exchanges	30	5	2
- sacrifices	10	2	0
- hobby farming	10	-	5
7. Security	40	40	60

Source: Mbuza 1994, Personal communication

3.6 Production characteristic of indigenous cattle

A detailed account of the productivity of indigenous breeds of Uganda is given by Mahadevan (1966), and Sacker and Trail (1966). Their milk yield is generally poor and they are late.

TABLE 8

Uganda: Production Traits of Indigenous Cattle

Trait	Ankole ¹	Zebu ²	Nganda ³
Age 1 st calving (months)	51	43	42
Lactation length (days)	243	239	267
Dry period (days)	97	123	153
Calving interval (days)	342	362	420
Lactation milk yield (L)	882	692	859

¹ Sacker and Trail (1966) based on 153 lactations

² Galukande et al. (1962)

³ Mahadevan and Marples (1961)

Despite their relatively low production parameters, the indigenous breeds are well adapted to the local climatic, nutritional and disease conditions prevalent under the management systems. They have a high degree of heat tolerance, are partly resistant to many diseases, are able to survive long periods of feed and water shortage and also have excellent mothering ability (Mahadevan, 1966). It is no wonder therefore, that the indigenous breeds suffered a relatively lower mortality level than the improved/exotic breeds during the periods of civil strife in Uganda (Mbuza 1991).

3.7 Cattle management Systems

A description of the distribution and management of cattle in the various areas of Uganda is given by Parsons (1960). The systems of cattle management in Uganda do overlap and are therefore difficult to delineate. However, with regard to the level of inputs and outputs, two broad categories are distinguishable, namely: traditional or conventional and improved or commercial systems. Basically indigenous cattle are multi-purpose and are in most cases kept as mixed enterprises together with crop production.

The traditional systems may be extensive such as nomadic Karamojong keeping Zebu shorthorn cattle; or the transhumant Ankole tribe (Bahima) who keep Ankole cattle. Some Ankole cattle are kept under semi-intensive, tethering systems in highly populated areas such as the highlands of Kigezi in the same way as some Zebu shorthorn cattle are kept in highland areas of Bugisu.

Communal grazing on the range-lands is the commonest system of raising indigenous cattle where cattle are herded into compound herds owned by more than one person.

In densely populated areas, fields which are resting from cultivation and crop residues may be grazed by the smaller, individually-owned herds. There are large numbers of indigenous cattle under improved farms which may be commercial or institutional farms that have undertaken improvements such as fencing, pasture development, provision of water, breed improvement etc. Such farms may be specialized dairy units or commercial ranches.

4.0 BREEDS OF GOATS

Goats in Uganda are mainly kept by subsistence, small-holder peasant farmers. The largest proportion of goats are raised on open range systems in combination with cattle. The commercial beef ranches also keep substantial numbers of goats. In the sedentary crop farming areas, goats are raised under tethering and semi-zero grazing systems. The main use of goats in Uganda is for meat and skins but they also serve many other social functions like paying dowries, sacrifices, gifts and above all they are a ready source of cash to rural communities and their droppings are a good source of manure.

The goat population in Uganda has remained relatively stable as compared to other livestock species. They appear to be less sensitive to drastic socio-economic-political and biological environment disturbances as their reproduction and multiplication rates promote sustainable existences (Kiwuwa, 1986). The systems of goat production in Uganda are yet to be studied and characterized in relationship to growth, survival and fattening.

Goats constitute about 40% of the ruminant livestock population in Uganda and are distributed over 500/o of the rural households throughout the country (EEC/WFP, 1987). In Uganda and East Africa at large, goat meat is generally preferred to and fetches higher prices than beef or pork (Hollan, 1959, Kiwuwa 1986).

Mason and Maule (1960) classified the East African goats into four types and only three of these are found in Uganda.

4.1 The Small East African Goat (SEA)

These are small goats with adult live weight varying between 25 - 30 kg and wither height of about 60 cm. They are very hardy, with a fine short hair coat which varies in colour. Horns are common and mature bucks have a pronounced mane of long hair running the full length of the



Dwarf East African goat



Mubende Goat

back. These goats tend to mature early often reaching sexual maturity before four months and can breed throughout the year (Mason and Maule, 1960). The SEA goat is found almost throughout the whole of the country and is mainly kept for meat.

4.2 The Mubende goat

The Mubende goat derives its name from the Mubende district of Uganda which is its home ground. It is also found in large numbers in areas north and west of Lake Victoria. In most other parts of the country, crosses of Mubende goats with the SEA and the Kigezi are found.

As described by Mason and Maule (1960) the Mubende goat is nearly always pure black in colour although black and white and other colours may be found. The hair-coat is short and fine and males are maned. Horns turn back close to the nape of the neck. They are commonly polled. At Entebbe Livestock Experimental Station, adult live weights of 45 kg and 28 kg were attained respectively for males and females (Sacker and Trail 1966). Females attain kidding percentage of about 150 with a kidding interval of about 300 days (Sacker and Trail, 1966). They are also mainly kept for meat. The skins from Mubende goat are renowned for their high quality which puts them in great demand on the world market (Gall 1981; Getaye et al. 1988).

4.3 The Kigezi goat

The Kigezi goat is described by Mason and Maule (1960) as a black, long-haired goat deriving its name from the former Kigezi district of southwestern Uganda. It is also found to some extent in Buganda. It is somewhat smaller, more compact and shorter-legged than the Mubende goat. It is characterized by long, black or grey hair.

4.4 Population of goat

According to the most recent statistics, the total population of goats in Uganda is 3.7 million (NCAL 1991). The relative populations of the different breeds of goat are presented in Table 9.

TABLE 9

Uganda: The population and sex structure of goats

BREED	SMALL EAST AFRICAN	MUBENDE	KIGEZI	TOTAL
TOTAL POPULATION	1539459	1229905	930.741	3700105
PROPORTION OF BREEDING MALES	14.2	15.3	12.8	14.2
POPULATION OF BREEDING MALES	218.603	188.175	119.135	525.913
PROPORTION OF BREEDING FEMALES	47.3	54.0	57.7	52.1
POPULATION OF BREEDING FEMALES	728.164	664.149	537.037	1929350

Source: UCAL, 1991.

5.0 SHEEP BREEDS

Sheep in Uganda are of the fat tailed type and include the following breeds:

5.1 Masai type

The Masai-type sheep are found in Eastern and Northern Uganda including Karamoja. They are short-legged and red (Mason 1951). Males have fat tails and are usually horned.

According to Mason and Maule (1960), the Masai sheep under natural conditions tend to breed seasonally and carry one lamb per year, but a proportion of ewes may have 2 lambs in a year. Twinning is known but rare.

5.2 East African black head

This type is found in Western Uganda especially in the former Ankole district. They are hairy, fat-tailed, black or brown pied in colour. They do not have wool under the coarse hairy coat (Mason and Maule, 1960). The males can grow up to 40 kg mature live weight and 25-30 kg for ewes. Well managed ewes can give 2 lambings annually and twinning is relatively common.

5.3 East- african Long-tailed

This type is found widely all over Uganda, they are small, of many different colours. The coat is often hairy with a down undercoat,

Sheep in Uganda are kept for meat especially in the eastern region and central Uganda. The meat of sheep is unpopular in the south and west of the country. Among the Ankole cattle keepers, sheep are kept in company of cattle herds. Sheep play a big role among traditionalists for sacrifices. The management systems vary from semi-intensive tethering systems in high population areas to communal grazing with goats on open ranges. On commercial ranches sheep are kept together with cattle. It is also common to find small numbers of sheep on dairy farms especially in the Mbarara area.

5.4 Population of sheep

According to recent statistics, the total population of sheep in Uganda is about 9.6 million and the relative proportions of the different breeds are presented in Table 10.

TABLE 10

Uganda: The population and sex structure of sheep

INDIGENOUS BREED	MASAI	EAST AFRICA BLACK-BEAD	EAST AFRICAN LONG-TAILED	TOTAL
TOTAL POPULATION	216.199	491.445	256.929	964.573
PROPORTION OF BREEDING MALES	21.5	12.5	21.0	16.8
POPULATION OF BREEDING MALES	46.483	61.431	53.955	161.869
PROPORTION OF BREEDING FEMALES	58.0	63.8	57.3	60.8
POPULATION OF BREEDING FEMALES	125 39	13 542	147 220	586 157

Source: NCAL, 1991.

6.0 SWINE RESOURCES

Swine production is predominantly in the hands of small farmers keeping 2-3 breeding sows. The animals usually scavenge for themselves or are fed on farm waste. The breeds are predominantly the indigenous ones and landraces.

Management is not adequate and foodstuffs are not available on a regular basis. Available evidence, however, shows that the number of pigs in the country is increasing but at a slow rate as shown in Table 11.

TABLE 11:

Uganda: The Swine population for the years 1979-91

YEAR	POPULATION
1979/81a	200000
1987b	470000
1991c	671712

a Annual Reports of the Department of Vet. Services

b UASS (1987)

c NCAL (1991)

The current population and flock structure of swine in Uganda is summarized in Table 12.

TABLE 12:

Uganda: Total and Breeding Population of Swine

BREED	VARIOUS BREEDS
APPROXIMATE POPULATION	671712
PROPORTION OF BREEDING MALES	10.2%
POPULATION OF BREEDING MALES	68654
PROPORTION OF BREEDING FEMALES	29.3%
POPULATION OF BREEDING FEMALES	196694

Source: NCAL (1991)



Local Scavenging pig

7.0 POULTRY

Indigenous birds are kept almost in every household in numbers ranging from 5-18 birds. They are of special importance in areas producing cereal crops especially in the districts of Northern and Eastern Uganda. In these areas, chicken almost costs nothing to raise yet it is a great source of animal protein and cash income to these rural communities. The population of village chickens in Uganda is estimated to be more than 12 million (NCAL, 1991). Unlike the case with cattle, goats or sheep, there are more households keeping large numbers of chickens i.e. more than 1. The indigenous village chicken constitutes over 90 percent of the chicken reared in Uganda. They supply the bulk of the national requirements for eggs and poultry meat for the urban population.



Local Cockerel



Local black turkey

8.0 OTHER LIVESTOCK

These include Turkeys, Ducks, Geese, Rabbits, Donkeys and Mules. Apart from the latter two, these species are kept as a source of animal protein, supplementing the main livestock types already mentioned above. Apart from chickens, they are kept in small numbers at a subsistence level by a small proportion of households.

Table 13 below indicates the population of other livestock as shown in the results of the National Census of Agriculture and Livestock, 1991.

TABLE 13

Uganda: Population of other livestock species

SPECIES	POPULATION
Chickens	11442120
Turkeys	36155
Ducks	171982
Geese and other birds	29595
Rabbits	33051
Donkeys/Mules	5393

Source: NCAL (1991)

9.0 AGR PROGRAMMES

9.1 AGR activities in Uganda, like in many other countries are still lagging behind. There were some activities on the characterization of indigenous cattle breeds in Uganda as reported in the literature, for example, Trail, Sacker and Fisher (1971); Trail, Sacker and Marples (1971) and Gregory, Trafl and Kakonge (1985). These studies aimed at providing some of the basic information required to lay the foundation of breeding programs for commercial beef production in the Ankole-Masaka Ranching Scheme. A series of individual traits such as reproductive performance, calf viability, growth, mothering ability and carcass quality were studied.

Since early 1970, there has not been much activity with regard to AGR, such that there are considerable deficiencies in the database required for planning conservation programs and drawing future breeding plans for sustainable utilization of our indigenous breeds. The information gaps that require urgent attention include:

- Establishing the inventories of all the breeds for all the species and their population structures.
- Characteristics of all the breeds both 'on-station' and 'on-farm'.
- Characterization of the production systems
- Establishing the genetic distances between breeds.
- Measurement of the additive and heterotic differences between the indigenous breeds and some selected exotic breeds for subsequent crossbreeding programs.

9.2 The Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) fully recognizes the importance of indigenous Animal Genetic Resources and realizes the urgent need for their conservation and sustainable utilization. It is in light of this that the MAAIF has already initiated activities towards the development of a National Animal Genetic Resources Program. Preliminary workshops have already been conducted to sensitize all bodies and sectors interested in AGR activities, such as Game, Fisheries, Research and Teaching Institutions, Farmer's Associations.

An interim National Animal Genetic Resources Co-ordinating committee is already in place and a fully-fledged one is to be formed at a National Conference later this year.

Efforts towards the formulation of a National animal breeding policy are well underway with the assistance of DANIDA. The rehabilitation and strengthening of the artificial insemination centres and activities as one of the ways for the genetic improvement of local cattle breeds especially for dairy production.

Herd recording on dairy farms had started with the assistance of the ADF Dairy Rehabilitation project in the main dairying districts. Plans are underway to reactivate and strengthen herd recording activities on dairy farms.

The recently concluded National Census of Agriculture and Livestock (1991) has been valuable in providing up-to-date total population figures for the different domestic animal species and the breeding and age structures. Detailed studies of the specific breeds are urgently required. There are also plans to establish an Ankole cattle herdbook with the assistance of German Technical Assistance (GTZ).

9.3 Regionally, Uganda is in close collaboration with the International Livestock Centre for Africa (ILCA) with regard to joint efforts for the characterization and conservation of some of the threatened breeds.

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