



agriculture & rural development

Department:
agriculture
& rural development
PROVINCE OF KWAZULU-NATAL

Imvu – The indigenous sheep of KwaZulu-Natal:

A Zulu Heritage

Erika A van Zyl¹ & T J Dugmore²

KwaZulu-Natal Department of Agriculture and Rural Development

¹ Dundee Research Station, PO Box 626, Dundee, 3000. (034 2 122 479)

² Cedara Research Station, P/Bag X9059, Pietermaritzburg, 3200. (033 3559 262)

E-mail: erika.vanzyl@kzndae.gov.za; trevor.dugmore@kzndae.gov.za

1. Introduction

The indigenous sheep of KwaZulu-Natal, or Imvu (*or izimvu in plural*) as they are known in Zulu, presently occur in relatively small flocks, scattered throughout the northern and especially the north-eastern parts of the traditional Zululand region of KwaZulu-Natal where they graze on communal grazing areas during the day and are confined (kraaled) at night.

The breed is listed as “Nguni” sheep under “Declared Landrace breeds: Indigenous and locally developed”, in the Animal Improvement Act – Act 86 of 1998 – and are also referred to as “Zulu” or “Nguni” sheep internationally (Anon 1, Epstein 1971, Mason 1996). Following a tour to access the status of the indigenous sheep of KZN and consultation with the owners on its name, at a workshop on the indigenous sheep of KZN it was decided to use the Zulu name of Imvu for the local indigenous sheep of KZN, since it is exclusively used to refer to the indigenous sheep in Zulu and distinguishes this breed from other resident breeds in the province; the woollen sheep are referred to as “skaap, isiklabhu or igusha”.

These hardy, agile, versatile fat-tailed sheep have been part of the Zulu nation as long as the nation has existed and have been managed alongside traditional cropping systems for ages. In many old paintings sheep are shown as an integral part of traditional Zulu livelihood during the 16 and 17th centuries. Folklore tells us that the well-known Zulu king, Shaka, as a six year old herd boy (1795), was banished from his Zulu clan after he allowed a dog to kill one of this father’s (Senzangakona) sheep. With this relatively small incident, a new dawn broke for the Zulu nation. The difficult years to follow, shaped Shaka to become the strong and often controversial king he was during his reign (1816 – 1828) when he succeeded to unite the different clans into one strong nation (Anon 2, Haveman 2010).

Sheep would have been valued those days. The tails provided fat; a much needed source of fat since pigs were absent in local economies (Epstein 1971, Maree et al. 1993). The description of daily life also told that the fat was not only used for cooking, but also for other purposes: “the women... anointing themselves with the fat from the heavy tails of sheep” (Anon 3). As for the sheep itself, it also has definite advantages in serving as an energy reserve in times of drought and adverse conditions (Maree et al. 1993).



Fig 1: An old painting showed sheep as part of the every day life in a Zulu homestead. See the typical Imvu appearance

According to “The Domestic Animal Diversity Information System (Anon 4) the Imvu (Zulu) breed consists of a total population of 109 800 with 69 200 breeding females. However, these numbers are now estimated to be much lower in KZN, and are presently under review in 2009 -2010 by the Department of Agriculture, Environmental Affairs and Rural Development, KZN (KZNDAEARD). Besides the danger of low numbers and with the imminent threat of inbreeding (fragmentation/isolation in scattered, small flocks), the breed is today furthermore seriously endangered by crossbreeding due to imports of other sheep breeds into free ranging communal areas - mostly western and composite breeds like Dorper and Merino. Except from randomly bought “foreign sheep” introduced, crossbreeding on purpose is also practised, where Imvu owners thought to “upgrade” their flock. No wonder several scientific and popular publications have warned that the Imvu is “at the brink of extinction” (Du Toit, 2008; Haig, 2009; Nicholas, 1998).

However, this situation is common to indigenous breeds all over developing countries. The smaller frame and lack of uniform colour in indigenous livestock breeds let the colonial settlers to believe that indigenous breeds were inferior when compared to European. This perception of inferiority remains until today and is largely responsible for the replacement of indigenous breeds by imported breeds. Instead, far from being inferior, these animals produce more than exotic breeds under the low maintenance conditions that are typically found in the marginal areas of the country (Bester, 2007). Scientists at the UN Food and Agriculture Organization’s first Summer Summit on animal genetics, held at Interlaken, Switzerland, 2007, warned that many African and Asian indigenous livestock breeds face a ‘meltdown’ because of the relentless march of high-yield breeds. Many of the world’s rare livestock face extinction unless conservation measures are taken immediately. Modern agriculture overlooked the benefits of genetic traits that have evolved in breeds found in developing countries, while drought – or disease tolerant attributes would become increasingly important to farmers in the future (Du Toit 2008).

The awareness of the value of indigenous livestock breeds in KwaZulu-Natal gained momentum in recent years with several institutions prioritizing this matter. The provincial Parliament and Department of Agriculture, Environmental Affairs and Rural Development in KZN initiated “The Nguni Revitalising programme” and an “Indigenous breed’s policy” was released in 2007. The Farm

Animal Conservation Trust (FACT), established in 1994, with a mission to facilitate and promote the conservation of South Africa's indigenous farm animal genetic resources, have the indigenous breeds of KZN high on their agenda, as well as the Farm Animal Genetic Resources from National Department of Agriculture. Private breeders also realise the value and importance of the breeds and established flocks/herds (e.g. Richard Haig, Enaleni Organic Farm – [Farmers Weekly Ref](#)).

Cattle and goat issues received the main focus of official attention in the recent past, but in March 2009 the indigenous Zulu sheep breed was listed a priority by the KZNSDAERD and will receive priority attention. Several initiatives, coupled with time frames were decided to support the conservation and revitalization of this breed. The first was to compile a literature review on the Zulu sheep, which resulted in this document.

2. Origin

A number of nomadic black and coloured nations inhabited North Africa hundreds of years ago, when the Sahara was still grassland. It was suggested that increasing desertification of the southern regions of the Sahara by 2050 BC forced people to migrate southwards (Maree et al. 1993), but they were hindered by a tsetse fly -*Glossina morsitans*- belt stretching along the equator across the whole of Africa. Epstein (1971), cited by Campbell (2003), also referred to this tsetse fly barrier, but showed by means of a schematic map of tsetse fly distribution a narrow tsetse fly-free corridor in the region of the Lake District near Lake Victoria and the Ruwenzori mountains. This could have been the gateway southwards. The existence of Nagana (sleeping sickness carried by the tsetse fly) tolerant cattle, goats, *hairy sheep* and dogs, owned by some tribes along the equator, could have aided to make the slow, unhurried southward migration possible. Several migration routes were suggested.

Coloured nations, present in northern Africa possessed Zebu-type cattle, fat-tailed sheep and dogs, but were driven out of the area by stronger nations and were forced to migrate southwards (starting during the fifth century AD in the region of the lake districts), along the tsetsefly free corridor and then down the drier west coast with their livestock (See Fig 2). They possessed Zebu-type cattle, *fat-tailed sheep* and dogs (Campbell 2003).



**Fig 2: Map showing different migration routs of cattle down Africa (Anon 7).
The cattle was accompanied by other livestock e.g. sheep**

Based upon evidence found at an archaeological site known as Kasteelberg (situated about 120 km north of Cape Town and 4 kilometres from the sea) they reached the Cape about 2000 years ago. Here they traded with Portuguese ships, replenishing fresh supplies on their ships, as they rounded the Cape. Rock paintings by the San on the rock faces of their rock shelters in the Cederberg Mountains confirmed the existence of fat-tailed sheep (See Fig 3). From these sheep, the fat-tailed Afrikaner sheep were bred. (Campbell 2003).



Figure 3a: San rock paintings with drawings of fat-tailed sheep (Anon 1)



Figure 3b: San rock paintings with drawings of fat-tailed sheep

A second migration route took people of the Iron Age tribes - Kunene *et al.* (2007) referred to them as Nguni people - southwards down the hot, sweltering East Coast, where tick borne diseases are prevalent (See Fig 2 and 4). Their arrival in the Northern and Eastern parts of the present-day South Africa from 200 to 700 AD brought another wave of sheep to the region (Anon 5), as well as the first domestic plants (sorghum and millet) and large herds of Sanga cattle (Campbell 2003). One group came down the east coast into KwaZulu-Natal and then dispersed further to the south, but this dispersal was limited by the growing conditions required for their crops, which could not be grown on the cold plateau of the Highveld.

Most of the literature referred to the “fat-tailed sheep” that accompanied these tribes on their southward migration as an Nguni type of sheep, according to Kunene *et al.* (2007). However, according to Bachman (1983) as cited by Campbell (2003), these people possessed a variation of Zebu type cattle fairly adapted to tropical conditions, small hairy, *thin-tailed sheep* - goats and small, tough hairy dogs. By means of barter or raiding with Khoikhoi, these tribes also acquired goats and *fat-tailed sheep*, which could influenced the original genetics of the “Nguni -type sheep”. Maree et al.

(1993), however, stated: “hairy, thin-tailed sheep extend across the widest part of Africa from Ethiopia and Eritrea to the Zambia, Angola and Damaraland” and can roughly “be divided into large savanna types and the dwarfed sheep of equatorial Africa”, while “the sheep of the indigenous people of southern Africa consist essentially of fat-tailed breeds”.

The hardy livestock ecotype that evolved in the process settled in various biomes (See Fig 4) and adapted to periodic droughts, seasonal droughts, nutritional shortages in the natural vegetation and a variety of internal and external parasites and stock diseases endemic to these areas. These types of livestock were described in some detail by early settlers and were often depicted in drawings and paintings (Du Toit 2008, Ramsey *et al.* 2000)

Du Toit (2008) wrote that two sheep breeds namely the Pedi and Zulu sheep, could be identified out of this migration to areas where they still can be found in relatively small numbers today. Epstein (1971); Wilson (1991) and Mason (1996), however, classified them as part of the Nguni group of sheep, consisting of the Pedi from Sekukuniland, Landim sheep of Mozambique (Landim = landrace in Portuguese), the Swazi sheep in Swaziland and the Zulu sheep further south.

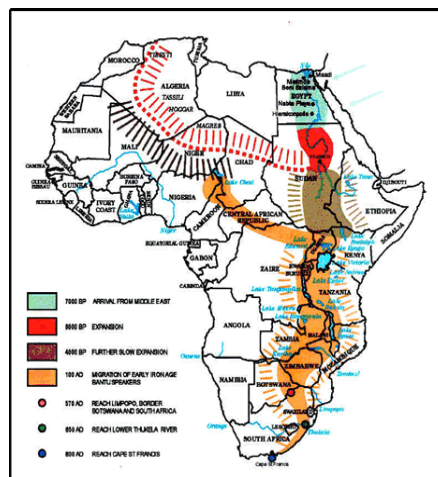


Fig 4: The southwards migration of early Iron Age people (Anon 5)

3. Characterization

All domesticated sheep are characterized by the presence of face glands and foot glands Epstein (1971). The domesticated sheep of Africa were divided in three major three groups by Mason & Maule (1960) who decided to utilise only tail characteristics, since they found fleece characteristics to be of little use, due to variations and combinations of fleece type:

- Thin-tailed,
- Fat-tailed and
- Fat-rumped sheep

The Nguni group are classified as fat-tailed sheep and consists of the Swazi sheep, the Pedi (Bapedi) and the Landim sheep of Mozambique as the Nguni sheep (Epstein 1971; Wilson 1991; Mason 1996). Epstein (1971) however, felt that in a narrower sense, the term Nguni is restricted to the sheep of the Swazi and Zulu.

3.1 Normal production environment

Their classical habitat is the hot humid coastal forests to hot dry bushveld where they are reported to have developed a tolerance of ticks and survive in areas where heartwater is a serious threat to

livestock. Other than here, sour grassveld areas like Msinga top and Nkandla, with moderate to warm summers and cold winters today also posses several flocks and sheep seemed to be adapted.

All sheep are kept under extensive communal systems, low to no input in health management. Average size of the flocks counted is approximately 10 head per flock. Kunene & Fossey (2006) found that the majority of flocks averaged between 6 and 10 sheep and sheep only formed 2% of livestock kept in the community by only 4% of the farmers in the community. Farmers do not dip sheep and goats (Kunene & fossey, 2006).

Lambs born in summer months experienced stress and too much rain during the lambing season resulted in a high incidence of diseases and reduced production according to 80% of sheep owners surveyed (Kunene & Fossey, 2006).

Known and flocks visited in KZN include:

• Msinga	90flocks	± 1000 sheep
• Ekuvukeni (Appear to have Dorper blood)	5 flocks	± 40 sheep
• Eshowe (Pure bloods)	3 flocks	± 60 sheep
• University of Zululand	1 flock	± 50 sheep
• Dundee & Makhathini RS's (DAE KZN)	2 flocks	± 50 sheep
• Ingwavuma	9 flocks	289 counted

3.2 Attributes

- Fertile with excellent mothering abilities – ewes very protective of their young
- Tolerant of external and internal parasites
- Tolerant of tick-borne diseases
- Good walking and foraging ability
- Adapted to a hot, humid environment; the fat localised in the tail enhance the shedding of heat.
- Coloured hair/wool can be used for carpets – a value-added trait (Anon 6)

The hardiness of the indigenous sheep is considered to be its most valuable attribute, and while they are also considered to be resistant to bluetongue, heartwater and blowfly are succceptable to internal parasites (van Rensburg, 1948). Ninety percent of sheep farmers surveyed by Kunene & Fossey (2006) report that they favoured indigenous breeds to exotics because they were better adapted to the local hot climate (Zululand), had reasonable meat production and were resistant to various diseases.

Hugo (1968) also considered that: “The value of the above breeds and types (referring to indigenous sheep) lies particularly in the fact that they occur and thrive in areas where another breed would hardly be able to exist. Their most valuable quality is therefore their adaptability to unfavourable environmental conditions”.

It would surely be a sad day if the custodians of such superb genetics, also specifically the Zulu sheep, allow it to become extinct due to indifference and/or negligence.

3.3 Frame

The Zulu sheep are small to medium frame animals (Anon 6 1998). The average weights for mature ewes, depending on condition, varied between 24 and 39 kg’s with shoulder heights between 59 to 65 cm and heart girths, between 79 and 84 cm. The mature rams weights are 40 to 45 kg’s, also depending on condition. Shoulder heights for mature ewes are 58 to 61 cm and for rams, 60 to 63 cm (Kunene 2007). Nyamukanza et al., (2010) found that average weights of mature sheep ranged from 27.5 to 29.5 over different seasons. Lambs are small and an average birth mass of 2.96 kg’s were recorded for single lambs and 2.41 kg for twins (Goetze 1998).

The hindquarters, chest back and loins are not liberally fleshed (fat is stored rather in the tails than over the body) and moderately long limbed which implicates mobility and the ability to walk distances. The Imvu is also known for its ability to browse ([Reference?](#)) and as a non selective grazer

(van Rensburg, 1948). However, Nyamukanza et al., (2010) found that sheep only browsed for less than 10 % of the time, compared to over 60 % for grazing in the dry season in Zululand. Pedi sheep have an exceptionally easy gait and frequently break into a jogtrot if it has to move rapidly (Hugo, 1968). Mouse ears (small ears) also occur in Pedi sheep, besides the normal long ears (Hugo, 1968).

A phenomenon observed in the Imvu, is their ability to scratch their flanks with their hind legs (dog style), in contrast with e.g. Merino sheep, which do not have this ability, but will use their horns, if any or “bite” themselves.



Fig 5 a: Interesting ability to use the hind legs for scratching



Fig 5 b: Interesting ability to use the hind legs for scratching



Fig 6: Imvu's are small to medium frame, agile animals

3.4 Colour patterns and coat/fleece

Rusty brown to pitch black variations are most common, also black with a rusty sheen, but multi coloured combinations, including white, also occur. Kunune *et al* (2007) found in their survey of Zulu sheep in different localities in northern KZN, that brown was the dominant colour (19%), a combination of brown and white (18%) and black and brown (16%).



Fig 7: A flock at Msinga Top. Note the different colour patterns and coats

Most of the sheep have a smooth hair coat (Compare Fig.'s 7, 8a and 8b), with or without a lesser or greater extent of ridge a coarse wool. They tend to be more “woolly” than breeds such as the Pedi and Damara. The hides have value-added traits for example to be worked into carpets (Anon 6). Another characteristic that is worth mentioning is that of a mane that was visible in the past, remembered by elderly farmers, but is no longer seen in the Imvu today. Swazi sheep are described as having hairy coats, longer along the back and on the rib cage (Wilson, 1991) which fits the description of the mane.



Fig 8a. General appearance of smooth hair coat in sheep in the hot, humid area of Kosibay



Fig 8b: Sheep with a more “woolly” appearance in the more temperate Nkandla environment

3.5 Horns

Rams are polled or horned, most ewes are polled. Horns normally turn from the head backwards and outwards in an open spiral (Hugo, 1968; Wilson, 1991). Kunene et al. (2007) found 41% of males were horned and only 10% of females had horns.



Fig 9: Rams can be polled or horned.
See also the different horn types in Fig 5b and Fig 7

3.6 Ears

A characteristic of a large number of the sheep is the very short (Wilson, 1991) almost no-existent ears – often referred to as “mouse ears” or “swelamadlebe” (those with no ears). Kunene et al. (2007) also mention the different lengths of ears observed in their survey of Zulu sheep in different localities in northern KZN, but concluded from their study that no correlation exist between ear lengths and live body mass of sheep. They found that out of their sheep that the sheep they surveyed, 44% had large ears, while only 7% had ear buds. Landim sheep have pendulous, but rather short (12.9 cm) ears with atrophied or vestigial ears present in 12 % of sheep (Wilson, 1991).

The cause of this unusual anatomic oddity is not known, but a general view held, however most possibly folklore, is that it developed over the centuries as a naturally defence against attacks by ear ticks. However, McCall, as cited by Epstein (1971) mentioned that the “fat-tailed sheep of East Africa are frequently devoid of the external ear; every degree of variation is noticeable – from a perfect ear to an ear of which only the scantiest vestige remains. Often the orifice of the ear is so small that it will not permit the introduction of anything thicker than a pencil”.

Epstein (1971) referred to McCall’s statement regarding this phenomenon in the East African sheep. He stated that “the genetic factor governing the formation is relatively potent”. He further cited Wriedt (1927), who explained that the absence of the auricula in sheep is due to a single heredity factor. In crossing earless sheep with animals having normal length ears the entire F₁ generation carries ears of about half the normal size ears. If such short eared sheep are interbred, the F₂ generation is composed of 25% homozygous earless sheep, 25% homozygous animals with ears of normal length and 50% heterozygous short-eared specimens. Ramsey (pers. comm. 2008) agreed that this applied also to the Zulu sheep and can explain the high occurrence of mouse ears observed in certain flocks especially where flocks are small and isolated.



Fig 10: Note the different size of ears

3.7 Tails

The tails are characteristically fat at the base, tapering carrot-like to the tip (Wilson, 1991). Some animals have short fat tails with either a hanging tip or an upward twist at the end of the fat portion whence a terminal section extends to below the hocks (See Fig 11). Landim sheep tails taper to a point at about one-third of the distance between the hocks and ground, averaging 35.6 cm in length (Wilson, 1991) The hanging tip is sometimes docked by farmers “to enhance fat distribution over the body” (See Fig 12). Kunene & Fossey (2006) reported that tail docking was done by 30% of sheep owners to prevent attacks by parasites as well as to improve growth rate and meat production. Rams seemed to develop more fat deposits in the tails.



Fig 12: A fat-tailed ram with tip of tail removed (docked)

Long-and-thin tailed individuals, devoid of all fat, are also quite common, testifying to a thin-tailed substratum (Epstein 1971). Mason and Maule (1960) defined it as follows:” Although the tail may be thinner than that of the Afrikander, it has considerable fat deposits compared with the West African or even Sudanese (...sheep) Therefore we include it in our fat-tail group.”



Fig 11: Ewe with typical carrot shaped tail

3.8 Reproduction performance

The flocks are normally run free ranging, which implies uncontrolled mating. The sheep have a well developed flocking instinct and the females are protective of their lambs and will fight predators.

Limited data are available on production performance. One reference could be found on work done at Makhathini Research Station (Goetze 1998) (See Fig. 13). A small flock of sheep in a continuous breeding system was monitored for several years and reproduction data are shown in Table 1. During the evaluation period the flock grazed veld and sometimes pastures, but with no supplements (it can be assumed that sufficient roughage was available year round) and was aided by a strategic dosing programme (only sheep with a haemocrit of 20 and below were treated for internal parasites). There was however serious difficulties reported during this evaluation; fluctuating flock numbers due to theft and mortalities may have influence the data and it must be seen as an indication, rather than exact.



Fig 13: Sheep from the Makhathini flock

Table 1: Reproduction data collected on the Zulu sheep flock at Makhathini Research Station between 1993 and 1998 (Goetze 1998). Rams ran with flock year-round.

	Mar – Dec 1993	Jan – Dec 1994	Jan – Dec 1995	Jan – Dec 1996	Jan – Dec 1997	Jan – Dec 1998	Jan – Dec 1999
Number of ewes	29	29	32	33	31	33	35
Lambing%	189	144	181	121	108	115	97
Fecundity	2.11	1.51	1.81	1.39	1.22	1.52	1.17
Year old survival rate	82.6	77.7	71.4	70	58	68.5	57.5
Mean ewe weight at lambing	37.4	38	36.4	34.1	32.8	33.1	33.4
No of triplets	0	1	0	0	0	0	0
Ewes lambed twice in 12 months	41	17.2	34	13	13	18	3
% Twins	44.7	31.2	34.8	23.6	8	21.2	14
Mean Birth weight of single lambs:							
* Male	3.11	3.23	3.4	2.8	2.65	3.2	3.06
* Female	2.96	2.82	3.28	2.65	2.57	2.67	3.1
Mean Birth weight of twin lambs:							
* Male	2.99	2.92	2.65	1.94	1.3	2.47	2
* Female	2.84	2.83	2.16	1.85	1.9	2.52	3.42
Mean 100 day weight (kg)	16.2	14.7	13.24	-	-	-	-

Average daily gains to 100 days (from Table 1) are approximately 117 g/d (compared to traditional breeds off veld)

Wilson (1991) described the reproductive ability of Landim sheep as; first lambing at 768 ± 289.7 days; lambing interval of 412 ± 163.1 days; multiple births are common; litter size is 1.41 ± 0.049 ; annual reproductive rate of 1.4. Growth characteristics recorded are: birth weight of 2.37 ± 0.441 kg; males 2.43 kg, females 2.32 kg, singles 2.52 kg, twins 2.24 kg; weight for age at 90 days = 9.9 and 180 days = 15.6 kg. Average daily gain from birth to 90 days = 83 g/d (Wilson, 1991).

3.9 Genetic characterization

Only two studies, done on the genetic characterization of southern African sheep, included the Zulu sheep, are known of. ([check Makita in SAJAS on Sabi sheep of Zimbabwe](#)) Buduram (2004) carried out a DNA markers study, using seven different Merino genotypes, as well as indigenous and locally developed breeds comprised of the Damara, Pedi, Blinkhaar Ronderib Afrikaner, Blackhead Persian,

Blackhead Speckled Persian, Redhead Persian, Redhead Speckled Persian, Zulu, Namaqua Afrikaner, Karakul, Swazi, Van Rooy and Dorper. He found that the genetic distances observed between the fat-tailed breeds (Damara, Karakul, Pedi, Ronderib Afrikaner, Van Rooy, Zulu and Namaqua Afrikaner) were relatively high confirming genetic differences between these breeds. From the results the Pedi seems to be genetically different from most of the indigenous breeds, especially the Afrikaner types. However, a close relationship was found between Zulu and Swazi which suggests a common ancestry. It also indicated that no geographic barriers separated these two breeds and although phenotypically very different, the breeds have more in common genetically.

Another study by Kunene et al (2008) was carried out to investigate the use of random amplified polymorphic DNA (RAPD) markers for detecting genetic similarity between and within three Zulu (Nguni) sheep populations. The populations were from Makhathini Research Station, Kwamthethwa community and the University of Zululand. The two areas are 250 km and 40 km away from the University, respectively. Genetic relationship between this breed, the Merino and Zulu goats (*C. hircus*) was studied for comparison. The DNA samples were isolated from 100 animals, 21 random primers were screened and 6 produced clear reproducible results. 1654 scorable bands were generated of which 824 were polymorphic. Estimation of the generic relationship for the data, comprised of *C. hircus*, Merino and Zulu sheep, revealed three distinct groups: one which consisted of the goats as an out-group, one of the Zulu sheep with sub-groups of the community and University sheep and the third group was the Makhathini sheep which formed a cluster with the Merino. The second set of data consisting of the Zulu sheep only formed three main clusters with each depicting each population. The genetic similarity within each population of sheep ranged from 77% to 95%.

4. Social importance

The primary reason for keeping sheep said by owners was for slaughter and home consumption. The owners described the meat as superior to other sheep breeds, most probably due to browsing habits that influence the taste of the meat. Occasionally sheep are sold for cash generation and can substitute cattle for paying “labola” in marriage agreements; 5 to 6 sheep for one head of cattle were mentioned in the Msinga area.

Some sources said that the Imvu have an important social and spiritual significance and a very specific and unique value, forming an intrinsic part of traditional Zulu rituals. According to local people (maybe folklore?) the Izimvu, which “do not bleat (like goats) when slaughtered”, are used to remove ancestors from a household in preparations for further rituals. There are furthermore mentioning of the traditional calming effect of the fat when administered to those suffering from over aggression or hyperactivity (Anon 7).

However, this seemed to be a controversial issue since several farmers that were interviewed during 2009 stated that there is no cultural/ancestral significance involved regarding the Imvu. The sheep are purely kept for food security and sometimes sold when cash is needed. This is supported by Kunene & Fossey (2006) who stated that sheep were not reported to be used for any cultural purposes. This issue can differ between different areas. In the Ingwavuma area, only the Mtwetwa family, used sheep instead of goats in all their cultural and religious activities (pers. comm. 2009)

5. Conclusion

Limited numbers of this yet untapped genetic resource exist and without intervention valuable genes, such as resistance to heartwater and heat in humid areas could be lost to animal production, particularly in a period of global warming.

6. References

- Anon 1. The indigenous breeds of South Africa. ARC. [Online]. Available at: <<http://www.arc.agric.za>>. Accessed 7/7/2009.
- Anon 2. The Zulu Nation – A Brief history. [Online]. Available at: http://africanadrenalin.co.za/IsibiniAfrica/Zulu_history.htm. Accessed 3/9/2009.
- Anon 3. Voortrekker history. [Online]. Available at: <http://www.voortrekker-history.co.za/dingane_great_trek.php> Accessed 30/6/2010.
- Anon 4. Domestic Animal Diversity information System. [Online]. Available at: <<http://dad.fao.org>> Accessed 1/7/2009.
- ARC-AII, 2001. The origin of the indigenous livestock of SA. ARC. [Online]. Available at: <<http://www.arc.agric.za/home.asp?pid=2692>> Accessed 3/9/2009.
- Anon 6. 1998. Landrace breeds: South Africa's Indigenous and locally developed farm animals. Compiled by Keith Ramsey and Antoinette Kotze. Farm Animal Conservation Trust Pretoria.
- Anon 7. Presidium Project: Zulu sheep. Slow food Johannesburg Convivium. 2009. Posted by Truluck T. [Online]. Available at: <<http://www.slowfoodjoburg.blogspot.com/2009/04/presidium-project-zulu-sheep-izimvu.html>>. Accessed 7/7/2009.
- Buduram P. 2004. Genetic characterization of southern African sheep breeds using DNA. Department of Animal, Wildlife and Grassland Sciences University of the Free State. PhD thesis.
- Campbell, Q. P. 2003. The origin and description of southern Africa's indigenous goats. SA-ANIM SCI, vol 4: [Online]. Available at: <<http://www.sasas.co.za/popular>>. Accessed 11/5/2009.
- Du Toit, D.J. 2008. The Indigenous livestock of Southern Africa. [Online]. Available at: <<http://www.damarasheep.co.za/files/parisRoundtable.pdf>>
- Epstein, H. 1971. The Origin of the Domestic animals of South Africa, Vol. 1 Dog, Cattle, buffalo. Revised in collaboration with I.L.Mason. Institute of Animal Genetics, Edinburgh. Volume II. Africana Publishing Corporation. New York, Munich.
- Goetze, S. 1998. The evaluation of the productivity characteristics of the indigenous Nguni Sheep. Progress Report 1998 of research project MAK. 38(19/2/51/2) Dept. Agriculture and Environmental Affairs, KZN. Makhathini Research Station.
- Haig, R. 2009. Traditional Zulu sheep. [Online]. Available at: <<http://www.enaleni-farm.co.za>>. Accessed 1/7/2009.
- Haveman, L. 2010. History of Shaka Zulu, KZN early history about the Zulu Nation [Online]. Available at: <http://www.kznnorthhappings.co.za/history_shakazulu.htm>. Accessed 30/7/2010.
- Hugo W.J. 1968. The small Stock Industry in South Africa. Printed in the Republic of South Africa by the Government Printer, Pretoria
- Kunene, N., Bezuidenhout, C.C & Nsahlai, I. 2008. Use of RAPD markers for detecting genetic similarity between and within Zulu (Nguni) sheep.. Proc. World Congress on Animal Production, Cap Town, 23-28 Nov 2008
- Kunene, N., Bezuidenhout, C.C & Nsahlai, I. 2009. Genetic and phenotypic diversity in Zulu sheep populations: Implications for exploitation and conservation. Small Ruminant Research 84, 100-107.
- Kunene N W & Fossey, A. 2006. A survey on livestock production in some traditional areas of Northern KwaZulu-Natal in South Africa. Livest. Res Rural Dev. 18 (8) *Article #113*. Retrieved August 27, 2010, from <http://www.lrrd.org/lrrd18/8/kune18113.htm>
- Kunene, N. W, Nesamvumi, E.A. & Fossey, A., 2007. Characterisation of Zulu (Nguni) sheep using linear body measurements and some environmental affecting these measurements. South African Journal of Animal Science 2007, 37 (1) .11-20.
- Maree, C. & Casey, N.H. 1993. Livestock production systems – Principles and practices. Edited by Maree, C. & Casey, N.H. Agri Development Foundation Pretoria.

- Mason, I. L. 1996. A world dictionary of livestock breeds, types and varieties. 4th Edition. CAB International Wallingford UK.
- Mason, I.L. & Maule, J.P. 1960. The Indigenous livestock of Eastern and Southern Africa. Technical communication No.14 of the Commonwealth Bureau of Animal Breeding and Genetics, Edinburgh. Commonwealth Agricultural Bureaux, Farnham Royal, Bucks., England
- Nicholas G, 1998. Nguni – A local hardy breed with great potential. Farmers Weekly, September 25, pg 14.
- Nyamukanza, CC, Scogings, PF, Mbatha< KR & Kunene, NW, 2010. Forage-sheep relationships in community managed moist thorveld in Zululand, KwaZulu-Natal, South Africa. Afr. J. Range Forage Sci., 27 (1) 11-19.
- Van Rensburg, C T, 1948. Skaapboerdery in Suid Afrika. Nasionale Pers Beperk, Bloemfontein, Kaapstad en Port Elizabeth, pp 45-46.
- Wilson, R T, 1991. Small ruminant production and the small ruminant genetic resource in tropical Africa. FAO Animal Production and Health Paper 88; Food and Agriculture Organization of the United Nations, Rome.