
PART TWO

SMALL RUMINANT TYPES/GOATS



LARGE GOATS

BOER

Synonyms. Africander; Afrikaner [both now uncommon].

Origins. Conformation and colour suggest a crossing of Dutch and Indian goats with local Bantu stock as the parents of this goat. The "improved" type dates from the 1920s although the name Boer was first used in the mid-19th century to distinguish short-haired goats from the recently imported Angoras. The modern Boer was developed in the Eastern Cape Province of the Republic of South Africa. A breed society was established in 1959.

Sub-types and races. Ordinary; Long-haired; Polled; Native; Improved ("Ennobled"). The Pafuri goat of western Mozambique results from crossing of a small number of Boer males on the Landim.

Distribution. Southern Africa. The Republic of South Africa has exported animals to Lesotho, Swaziland (Figure 21), Botswana (Figure 22), Mozambique, Zimbabwe and Namibia. Also in Kenya and in very small numbers in Burundi. Imported to Tanzania (Tanganyika) in the 1950s and subsequently used, with the Kamorai in the development of a "blended" goat.



Figure 21 A Boer buck imported from South Africa to a private flock in Swaziland

A "few dozen" in West Germany (from where exported to South-east Asia and to Rwanda). Total population might be 5.0 million of which about 2.2 million of "improved" type.



Figure 22 Boer females imported from South Africa to the Sunnyside Ranch of the Animal Production Research Unit in Botswana (note horn shape in doe on right)

Ecological zones. The Boer does best in arid areas although the improved type, at least, does not do well in really hard conditions outside the Republic of South Africa.

Management systems. Agro-pastoral, pastoral and ranching. Flock sizes large to very large under ranching conditions.

Physical characteristics. Large size 75-80 cm. Weight: male 120-140 kg; female 70-90 kg.

Head strong, forehead prominent (Figure 23), soft eyes, profile markedly convex particularly at lower end, wide nostrils.

Horns present or absent in both sexes: strong in males (black colour preferred) and of medium length with open homonymous twist with straight axis projecting backwards and outwards; lighter, scimitar shaped and backward curving in female. Ears medium-long and broad, lopped; shorter

or vestigial ears encountered in common stock. Toggles absent. Beards in males but not usually maned; females not bearded.



Figure 23 Profile, horns and ears of a male Boer goat

Neck of moderate length. Chest broad and deep. Withers higher than or level with sacrum. Back long, usually slightly dipped. Croup broad and long, not sloping. Strong rather short legs. Udder well developed. Testicles in unsplit scrotum.

Colour of improved type is white except for red head and part of neck: broad white blaze on face preferred. Common goats have more variable colours including spots on body and legs. Coat of short, stiff hair except long-haired type.

Products. Meat; (milk); (skins).

Productivity.

REPRODUCTION. *First kidding:* 12 months. *Kidding interval:* 12 months. *Multiple births:* common; single 43 per cent, twin 50 per cent, triplet 7 per cent. *Litter size:* 1.64. *Annual reproductive rate:* 1.64. *Oestrus cycle:* 22.0 ± 0.03 days with heat lasting 26.7 hours; seasonally polyoestrus with heats longer in autumn than spring and early summer. *Ovulation rate:* 6.0 ± 2.6 after treatment with PMS/HCG.

Spermatogenesis commences in males at 84 days, sperm in epididymis at 140 days and spermatozoa in ejaculate at 157 days: first successful mating at 168 days. Artificial insemination successful in getting 71 per cent of does pregnant with average of 1.9 kids per birth (200 x 10⁶ sperm per dose).

GROWTH. *Birth weight:* 3.0-5.0 kg; singles 4.5, twins 3.9, triplets 3.5 kg.

Weight for age: male; 100 days-30 to 33, 6 months-40 to 50, 8-64, 12-92, 18-117 kg.

Weight at 100 days in improved flocks in South Africa increased from 24 to 32 kg for males and 22 to 28 kg for females between 1970 and 1982.

MILK. *Lactation length:* 120 days (Figure 24). *Yield:* when supplemented with 2.7 kg of 4:1 mixture of lucerne:maize meal does suckling singles gave 1272 g/d (160.3 kg total yield) and suckling twins 1811 g/d (228.1 kg).

Composition: DM 15.7 per cent; fat 5.7 per cent; protein 3.1 per cent;

lactose 6.1 per cent; ash 0.9 per cent. Hand-milked does yielded one-third (476 v 1551 g) of suckled does

MEAT. *Dressing percentage*: 48 at 8-10 months, 56-60 at mature ages.

Carcass of 23 kg preferred from goats 6-15 months old.

SKINS. Three types are recognised: fine-fibred from short-haired goats in hot areas; medium-fibred used primarily for shoes; and coarse-fibred from long-haired goats in cold areas and used for handbags, suitcases and furniture.

NOTE: The few data available from outside the Republic of South Africa for the Boer goat usually indicate performances considerably inferior to those recorded here.

Research. Secretary, Boer Goat Breeders' Association, P.O.Box 282, Somerset East, 5850 Republic of South Africa. Other research in Germany, Botswana, Burundi, Zimbabwe and Kenya.

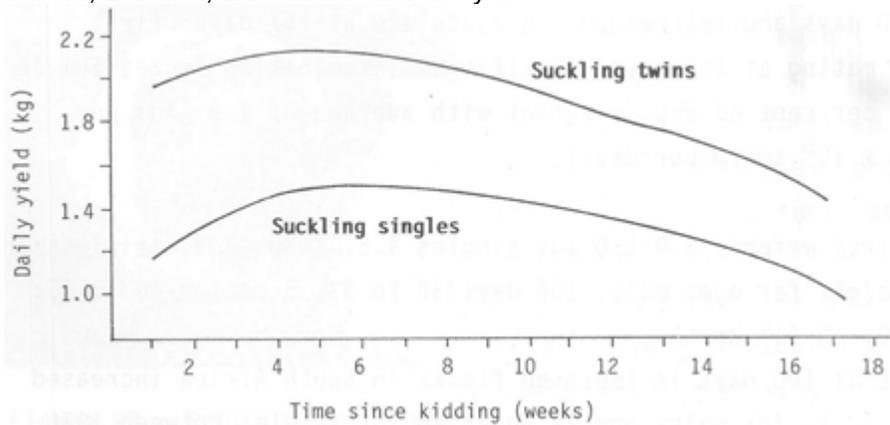


Figure 24 Lactation curves of Boer goats with different litter sizes.

References. van Rensburg, 1938; Hofmeyr, 1965; Hofmeyr et al, 1965; 1966; Skinner, 1972; Ueckermann, Joubert & Steyn, 1974; BGBA, 1984; Das, 1989; R. Lawrenz, pers.comm.

PAFURI

Origins. Results from crossing Boer males on Landim females. The Boers were introduced from the northern Transvaal in 1928. An attributed origin to the Nubian is probably erroneous.

Distribution. Restricted to a small area known as Pafuri (hence the type name) in south-west Mozambique near the border with South Africa and Zimbabwe. Total population is not known but numbers are probably very few.

Ecological zones. Semi-arid to arid sub-tropical with annual precipitation of less than 400 mm falling in one short season.

Management systems. Agro-pastoral to pastoral transhumant. The area of occurrence is thinly populated and there is limited cultivation of millet and some sorghum.

Physical characteristics. Large size. Weight: male 60 kg; female 43 kg. Head with convex profile.

Horns in both sexes: well developed in males and diverging; smaller and scimitar shaped in females. Ears medium-long and lopped or semi-lopped with rounded tips. Beards in males and females.

Neck strong and well set on both top and bottom lines. Back straight. Legs strong and well developed. Udder well rounded with large teats.

Colour very variable. Coat short or long.

Products. Meat; milk.

Productivity.

REPRODUCTION. *First kidding:* 1053 days on station. *Litter size:* 1.09; first cross Landim x Pafuri females 1.43.

GROWTH. *Birth weight:* 2.4 kg. *weight for age:* 30 days-4.2, 90-8.0, 150-10.1, 365-16.7, 550-25.8, 730-30.8 kg.

MILK. *Yield:* 398 ml/d during third month of lactation in foundation does (n=47) on station; station born primiparous does (n=16) averaged 305 ml/d in third month.

Research. Formerly at Instituto de Reprodução e Melhoramento Animal, CP 1410, Maputo, Mozambique.

References. de Pinho Morgado, 1954; 1959; Rocha, McKinnon & Wilson, 1990a.

TSWANA

Synonyms. Bechuanaland [obsolete].

Origins. The Batswana have owned goats for a very long time, unlike most other southern Bantu peoples.

Sub-types and races. A similar goat to the Ndebele of south-west Zimbabwe with which it intergrades along the Botswana/Zimbabwe border.

Distribution. Botswana, mainly along eastern and southern boundaries. Also in Zimbabwe and Bophuthatswana close to common borders. Total goat numbers in Botswana were estimated at 1.2 million in 1986, mostly of this type, and 97 per cent of these were in the traditional sector. Numbers were 783 000 in 1983, down from 1.0 million in late 1960s.

Ecological zones. Semi-arid to arid areas with one short, unreliable rainy season in summer and as many as 50 nights per year with temperatures below 0°C. Within these zones mainly distributed in scrub acacia areas with relatively little ground cover.

Management systems. Pastoral, agro-pastoral and a few flocks on commercial and larger modernised traditional holdings. Less than 3 per cent of goats are subject to modern management but 70 cooperative groups comprising 1648 small farmers (42 693 goats and sheep combined) receive extension assistance in the form of dipping, vaccination, castration and other veterinary services. Flock sizes average 20.9 in the traditional sector, 108.2 in the modern or commercial sector (Table 20). In Botswana 53 000 of 80 500 traditional farms own goats. Flock structures, related mainly to meat production: females 70.1 per cent (51.9 per cent breeding > 1 year), males 29.9 per cent (14.7 per cent > 1 year).

The ram subsidy programme of the Animal Production Division of the Ministry of Agriculture supplied 2 Tswana and 18 Boer x Tswana bucks to producers in 1985 (compared to 90 pure Boers).

Table 20 Goat flock size distribution in Botswana

System and Flock size	Percentage of farms	Percentage of goats
Traditional (n = 53 000)		
1- 5	18.1	2.9
6- 10	20.8	8.0
11- 20	28.7	20.3
21- 30	14.0	16.5
31- 40	7.5	12.4
41- 50	4.0	8.4
>50	6.9	31.5
Commercial (n = 270)		
1- 50	37.1	9.2
51-100	29.6	20.6
101-200	18.5	26.0
> 200	14.8	44.2

Physical characteristics. Large size 60-75 cm (male castrate 73.2 ± 0.76 cm; female 60.9 ± 3.54 cm). Weight: male 43.9 ± 6.6 kg; female 40.0 ± 4.9 kg.

Head not very strong, forehead flat to prominent, profile straight and relatively short (Figure 25).



Figure 25 Male Tswana goat owned by the Animal Production Research Institute

Horns: 69 per cent of males have horns of medium length, projecting backwards and then outwards; 76 per cent of females have lighter, narrower horns. Ears medium-long and broad, lopped.

Neck rather long. Chest fairly broad but shallow. Withers level with sacrum. Back straight. Croup has moderate slope. Legs relatively long.

Colour highly variable with mixed colours predominating (40 per cent), whites next most common (29 per cent), followed by blacks (17 per cent), browns (8 per cent), and greys (6 per cent). Coat short and fine (39 per cent), intermediate and wavy (47 per cent) or long (14 per cent).

Products. Meat; milk.

Productivity.

REPRODUCTION. *Kidding interval*: usually once a year; considered to be related to availability of food as a function of rainfall but conception is very delayed in this context in comparison to goats in similar ecoclimatic zones and it is possible that there are some photoperiod effects in this type of goat (Figure 26). *Litter size*: 1.50 (n=426) on research station, 1.37 (n=285) in traditional system. *Fertility*: 82 per cent of does exposed (n=521) to bucks kidded over 8 year period (1976-1983) on research station, in traditional system 95 per cent of 298 breeding age females kidded in 1986. Ministry of Agriculture estimated 70.3 to 86.4 "kidding percentage" nationwide from 1980 to 1985.

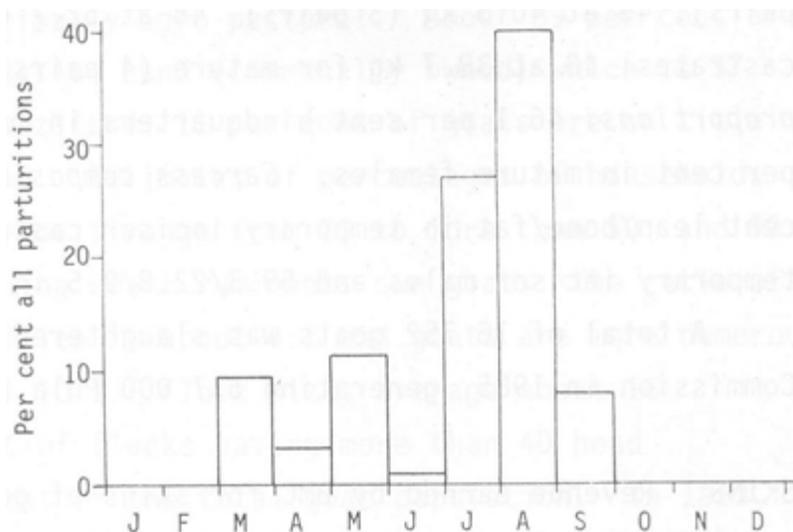


Figure 26 Birth distribution in a Tswana traditional flock with continuous buck presence from 1981 to 1983.

GROWTH. *Birth weight:* 2.8 kg (n=426) on research station; in traditional system male single 4.3 ± 1.5 , twin 4.3 ± 1.0 and female single 3.6 ± 0.9 , twin 3.7 ± 1.0 kg. *Weight for age:* 4 months-13.4 (n=297, research station), 5-16.1 (single male 17.8, twin male 15.4, single female 16.2, twin female 14.9 in traditional system), 10-22.5 (single male 24.4, twin male 24.5, single female 22.6, twin female 21.5 in traditional system), 12-29.6 (n=251, research station), 18-34.5 kg (n=184, research station). *Average daily gain:* birth-150 days - single males 93.3, twin males 84.2, single females 83.7, twin females 74.4 g in traditional system; birth-300 days - 67.1, 67.4, 63.3, 59.2 g for respective sex and birth type classes in traditional system. **MILK.** *Lactation length:* up to and in excess of 180 days in traditional system. *Yield:* 284 g/d in addition to that taken by kids in traditional system; highest yielding goat averaged 960 g/d for 1 month. **MEAT.** *Dressing percentage:* 43 for live weight of 23.9 kg (milk teeth), 43 at 28.4 kg (1 pair permanent incisors), 44 at 34.0 kg (2 pairs), 45 at 40.5 kg (3 pairs), 48 at 52.7 kg (4 pairs) for male castrates; 40 at 38.7 kg for mature (4 pairs) females. *Carcass proportions:* 46.1 per cent hindquarters in mature male castrates; 49.9 per cent in mature females. *Carcass composition:* 58.3/21.2/14.3 per cent lean/bone/fat in temporary incisor castrates, 59.0/22.2/12.5 in temporary incisor males and 59.3/22.8/9.5 in full mouth females.

A total of 16 752 goats was slaughtered by the Botswana Meat Commission in 1985, generating 537 000 Pula for farmers.

SKINS. Revenue earned by BMC for skins of goats slaughtered in 1985 was 108 540 Pula, equivalent to about 20 per cent of their revenue from the meat of the same animals.

Research. Animal Production Research Institute, Private Bag, Gaborone, Botswana.

References. Owen et al, 1977; 1978; Owen & Norman, 1977; APRU, 1984; Gray, 1987.

SWAZI

Sub-types and races. The Swazi is part of the Nguni group of which other varieties occur in the Zulu areas of the Republic of South Africa.

Distribution. Swaziland and adjoining areas. The 1985 census showed a population of 268 422 goats, down from 333 895 in 1983 and similar to the 1970 number of 259 047.

Ecological zones. Sub-tropical sub-humid areas.

Management systems. Principally agro-pastoral. About 89 per cent of goats are found on Swazi Nation Land (communally owned) which is 57 per cent of the area of Swaziland: 11 per cent of goats are on title deed (privately owned) land. Estimates of percentages of households on communal land that own goats range from 29 to more than 50, and 90 per cent of households owning small ruminants own goats: the ratio of goat- to sheep-owning families is about 6:1 and goats are more numerous than sheep in the ratio of 10:1. Flock sizes average about 16 animals, with 6.3 per cent of flocks having more than 40 head accounting for 20.6 per cent of the total goat population. In 1983, flocks comprised 32.3 per cent of animals younger than 6 months and, of animals older than this, 48.0 per cent were females, 13.8 per cent entire males and 5.9 per cent castrated males. Flock structure for a sample of 160 flocks is given in Table 21.

Physical characteristics. Large size. Weight: 30-40 kg; castrates to 70 kg.

Table 21 Goat flock structure and breeding status from 160 multiple owner flocks in Swaziland

Variable	Male		Female		Total	
	n	Per cent	n	Per cent	n	Per cent
Age (years)						
<1	289	11.0	376	14.3	665	25.2
1-2	203	7.7	687	26.1	890	33.8
2-6	53	5.8	782	29.7	935	35.5
>6	24	0.9	120	4.6	164	6.2
Breeding status						
immature	269	10.2	376	14.3	645	24.5
breeding	237	9.0	1589	60.3	1826	69.3
castrate	163	6.2	0	0.0	163	6.2
Total population	669	25.4	1965	74.6	2639	100.0

Horns present in both sexes: strong, moderately heavy and long in males with homonymous twist projecting sideways or backwards and outwards (Figure 27); lighter, scimitar shaped and backward curving in females. Ears medium-long (16 cm) and broad, lopped.



Figure 27 Swazi bucks in the traditional agropastoral system on Swazi Nation Land

Colour variable but whole colours (grey, black, white) predominate. Hair short and coarse or long and fine; longer breeches on both fore and hind legs of males and females not uncommon.

Products. Meat.

Productivity.

REPRODUCTION. *First kidding:* 344 days in range 263-428 days. *Kidding interval:* 268 days (range 192-348 days, n=204); first to second parity 273 (203-348) days, subsequent parities 253 (192-320) days. *Multiple births:* common; 69.0 per cent (52.3 per cent of young) single, 30.4 per cent (46.2 per cent of young) twin, 0.6 per cent (1.4 per cent of young) triplet. *Litter size:* 1.32, being 1.13 in primiparous does and 1.39 in multiparous ones. *Annual reproductive rate:* 1.80, increasing from 1.54 at first parity to 2.01 at higher parities. *Fertility* (=does kidding/does in flock): 63 per cent, 54 per cent in maiden does and 70 per cent in females already having kidded at least once.

Kidding occurs all the year but with a peak in the winter months of May-Jul, associated with conception during the rains.

GROWTH. *Birth weight:* 1.9 ± 0.14 (s.d.) kg (n=482); males 2.0 ± 0.09 , females 1.8 ± 0.10 . *Weight for age:* 6 months-8.0, 12-14.5, 24-24.0, 36-35.2 kg. *Average daily gain:* birth-3 months - 68, birth-6 months -60, birth-12 months - 50 g.

MEAT. Carcass of 10-12 kg at 18-24 months.

Research. Animal Production and Health Department, University of Swaziland, P.O. Luyengo, Swaziland.

References. Lebbie & Mastapha, 1985; Lebbie, 1987; Lebbie & Manzini, 1989.