
PART THREE

SMALL RUMINANT TYPES/SHEEP



THIN-TAILED SHEEP

SUDAN DESERT

Synonyms. Northern Sudanese; Desert Sudanese; Sudanese Desert; (Hamdé, Drasciani, Gasc [Italian]).

Origins. Probably descended from ancient Egyptian stock.

Sub-types and races. Many "tribal" types have become recognized in recent years including Shugor, Dubasi, Watish, Kababish and Baqqara. Other classifications include Gezira and possibly Barka and Wollega in Ethiopia. A "fused ecotype" of Sudan Desert x Southern Sudan has been recognized in a central belt of Sudan.

Distribution. Sudan, north of 10°N, extending eastwards into Eritrea and westwards into Chad.

Ecological zones. Arid and semi-arid, also riverain.

Management systems. Mainly pastoral but grading into agro-pastoral and urban and similar to those described for Sudan Desert goat (p.66). Flock sizes are large. Flock structure is related to meat and/or milk production: females 77.8 per cent (breeding 55.8 per cent); males 22.2 per cent (4.2 per cent > 15 months).

Physical characteristics. Usually large size up to 80 cm (or bigger according to some sources) but varying with tribal type (as do all characters). Weight: male 60 kg; female 50 kg.

Head strong, forehead broad and flat, profile convex and some-times very markedly so, especially in Dubasi. Eyes set high on sides of head.

Horns usually absent in sheep from eastern Sudan but males from the west are usually horned: length up to 60 cm and of classic "ram's horn" spiral type; about 5 per cent of females in west are also horned. Ears usually medium-long, 12-18 cm, and pendulous. Toggles in both sexes in about 10 per cent of animals.

Neck long but fairly heavy. Chest fairly well developed. Withers prominent but broad in most types. Back long, with distinct dip. Sacrum usually higher than withers. Croup fairly well developed. Legs long, sometimes very long, and lightly fleshed. Tail long, thin but with varying amounts of fat at base or farther down depending on tribal type: length from 60 per cent of withers height to greater than withers height when it trails on ground. Colour variable depending, also, on tribal type. Coat fine to coarse, short to long.

Shugor. Shugor are moderately large sheep ranging in colour from light to dark brown (Figure 57). They have occasional patches of wool under the hair. Their distribution area is mainly along the White Nile and the regions to the west of it. Flocks of Shugor sheep are commonest in the western part of the Gezira, grazing on cotton and other agricultural by-products. Their migratory movements are longer than the Dubasi.



Figure 57: Ram of shugor tribal type in a traditional flock in the Sudan Gezira (note 'kunan' and charm tied to testicles)

Dubasi. Dubasi are the prototype sheep of the Gezira area, especially the northern part, and are concentrated in the villages of the Dubaseen tribes (hence 'Dubasi') in El-Fawar, Umbusha, Selaim and Kab El - Gidad, but they are also found north of Khartoum, where they are known as the Butana. These sheep are similar to or greater in size than the Shugor but their coat, occasionally hairy, is usually particoloured white and black Figure 58. The distribution of the black patches on the skin varies among regions and breeders.

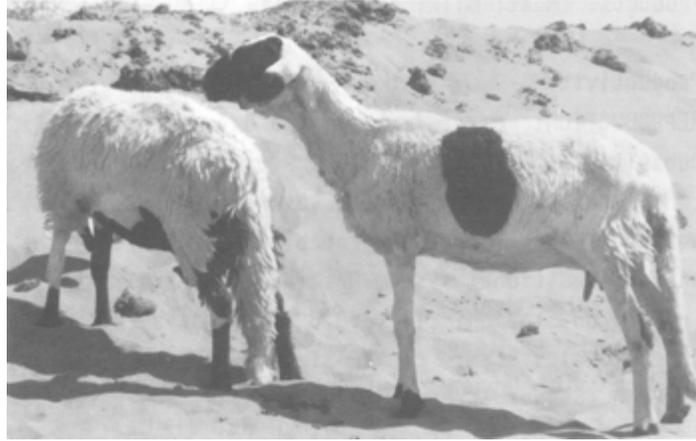


Figure 58: Dubasi ewes on the Nile bank near Khartoum, Sudan Gezira (note plastic bag on treat to prevent suckling and compare Figure 32) Watish. In comparison with the Shugor and the Dubasi, the Watish is somewhat smaller and stockier Figure 59. It is a hardy sheep and lives under relatively high rainfall conditions between latitudes 10°N and 11°N and mainly along the Blue Nile, south of Wad Medani into the Fung area. The principal tribes owning this sheep are nomadic and semi-nomadic, including the Kenana, the Rufaa El Hoy and the Beni Meharib. Haemoglobin Type B in the Sudan Desert sheep should potentially lead to high productivity, particularly in reproductive performance.



Figure 59: A Watish ram in the southern Gezira, Sudan

Products. Meat; milk; (skins).

Productivity

REPRODUCTION. *First lambing*: 433 days (Shugor 428 ± 3.0 (s.e.), Dubasi 429 ± 5.6 , Watish 406 ± 9.0) on station when allowed to run continuously with rams, much later (689 ± 42.5 days) when conception weight of 35 kg imposed; probably about 13-15 months in Southern Darfur traditional system. *Lambing interval*: 426 ± 20.0 (s.e.) days (n=452) on station; 275 ± 58.6 (s.d.) days (n=46) in Southern Darfur traditional system. *Litter size*: 1.22 ± 0.022 (s.e.) (n=1090) on station (Shugor larger than both Dubasi and Watish Table 34 1.14 in southern Darfur traditional system. *Annual reproductive rate*: 1.11 lambs per ewe on station; 1.50 in Southern Darfur. *Oestrus cycle*: 21 ± 5 days; 17 days at El Huda; duration of heat 25 hours.

Gestation period: 154 ± 4 (147-166) days; Shugor 151.3 ± 2.25 (s.d.) days (n=60), Dubasi 152.8 ± 0.36 (s.d.) days (n=96).

GROWTH. *Birth weight:* males 4.1 ± 0.63 (s.e.) kg (n=182), females 3.9 ± 0.66 (s.e.) kg (n=165), Shugor and Dubasi heavier than Watish. *Weight for age:* 30 days-7.4, 90-14, 120-16.7, 150-18.4, 240-25.3, 365- 31.7, 730-35.6, 1095-38.9 kg on station, Watish always lighter than

Table 34 Components of productivity of Sudan Desert sheep at El Huda, Sudan

Component and unit	n	Overall	Sheep sub-type			
			Shugor	Dubasi	Watish	s.e.
Litter size (n)	1090	1.22	1.30a	1.18b	1.17b	0.028
Parturition interval (d)	452	426	449a	425ab	403b	22.7
Lamb weight at 150 d (kg)	361	18.4	18.6a	17.3b	17.0b	0.54
Mortality at 150 d (per cent)	708	43.2	48.5a	46.3a	34.7b	3.60
Ewe post-partum weight (kg)	432	40.5	42.3a	42.2a	37.0b	0.64

Along rows, values without a common suffix letter differ (P < 0.05)

Shugor and Dubasi. *Average daily gain:* 0-30 days - 136, 30-120 - 110, 120-365 - 61 g on station. *Post-partum weights:* 40.5 ± 0.51 (s.e.) kg (n=432) on station, first parity ewes 37.5 kg.

MILK. *Lactation length:* 188 days on station. *Yield:* 137 kg. *Composition:* total solids 12.4 per cent; fat 4.28 per cent.

MEAT. *Dressing percentage:* 49.1 and 46.0 at 32.3 kg and 34.9 kg live weight on low- and high-fibre diets: 52.7 at empty body weight of 30 kg.

Carcass composition: 72.2/28.8 per cent meat/bone at 30 kg empty body weight in fattened animals; butcher's carcass 15.8 kg, head 1.9, skin 2.7, pluck 0.9, tail 0.1, omentum, 0.5, feet 1.3, intestines 1.4, stomach 1.5; muscle/bone/fat present at 54/18/24 per cent in animals fed low fibre and 56/20/22 in high fibre diet animals at 15.9 kg and 16.1 kg carcasses.

Research. Animal Production Research Administration, Ministry of Animal Resources, P.O.Box 293, Khartoum, Sudan.

References. McLeroy, 1961; Khatlab, 1968; Wilson & Clarke, 1975; Wilson, 1976a; El-Amin, 1983; El-Hag, El-Hag & Gaali, 1984; Sulieman & Eissawi, 1984; Sulieman & El-Tahir, 1984; El-Hag, Kurdi & Maghoub, 1985; Sulieman, Ali & El-Jack, 1985; El-Tayeb, Nour el-Din & Tibin, 1987; Sulieman & Wilson, 1989; 1990.

MACINA

Synonyms. Massina [not recommended].

Origins. Probably descended from the woolled thin-tailed sheep of north Africa and introduced to the present area of distribution by Moors and Moroccans during the conquest of Timbuctoo in the 15th and 16th centuries. Also considered, probably erroneously, to be descended from Karakul or from various crosses of Merino with Syrian or Barbary sheep in ancient times. Macina is the Fulani word for the Niger river inundation zone.

Sub-types and races. Goundoun (Doundoun, Koundoun).

Three other types of "wool" sheep are described from West Africa. The Hadina is a large black sheep, kept by the Toubou in the extreme east of Niger. The Dané Zaïla is a very small white sheep from the same area, kept by Arabs. The wool sheep of West Kanem is considered not to exceed 1000 head in total, being found to the north and west of Mao in Chad.

Distribution. Confined essentially to the flood plain of the river Niger in central Mali ($\pm 50\,000\text{ km}^2$) and downstream in a narrow band each side of the river as far as Niamey Figure 60. Macina in Mali, Goundoun in Niger particularly around Tillabery. Total population 600 000 plus 30 000 Goundoun.

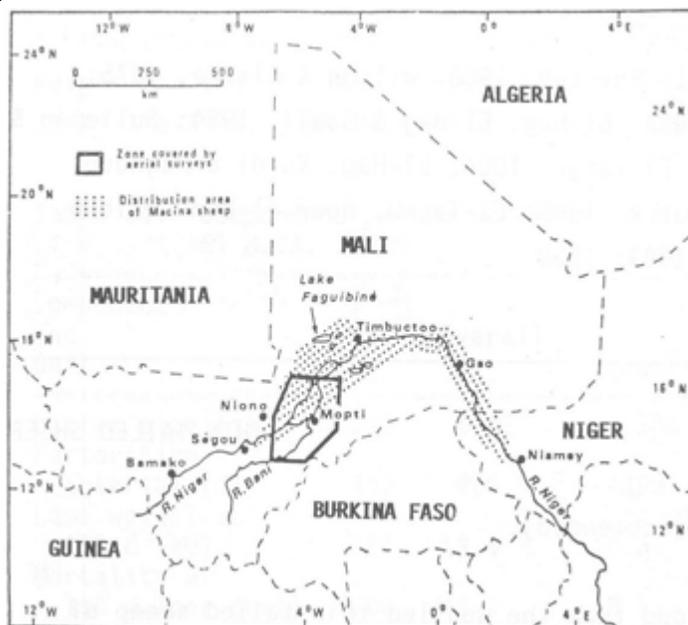


Figure 60 The distribution area of Macina sheep in Mali and Niger
Ecological zones. Does not thrive outside the humid area associated with the annual flood of the Niger river in the area of its distribution.

Management systems. Pastoral and agropastoral. Owned primarily by the Fulani of the Niger flood plain area. Transhumant management involves short treks outside the inundation zone during the period of maximum flood (Jul-Oct). A sophisticated system of flock stratification is used involving milking, breeding, slaughter and wool producing sub- units (Table 10). Flock sizes are generally large (69 per cent of flocks > 100 head). Flock structure, related to production of wool, includes a number of mature castrates: females 74.5 per cent (breeding 54.9 per cent); males 25.5 per cent (castrates 11.2 per cent).

Physical characteristics. Medium size 60-80 cm. Weight: male 40 kg; female 30 kg.

Forehead broad and straight, profile straight or slightly convex in males, no interorbital depression, supraorbital processes pronounced, narrow nose, upper jaw longer than lower Figure 61.

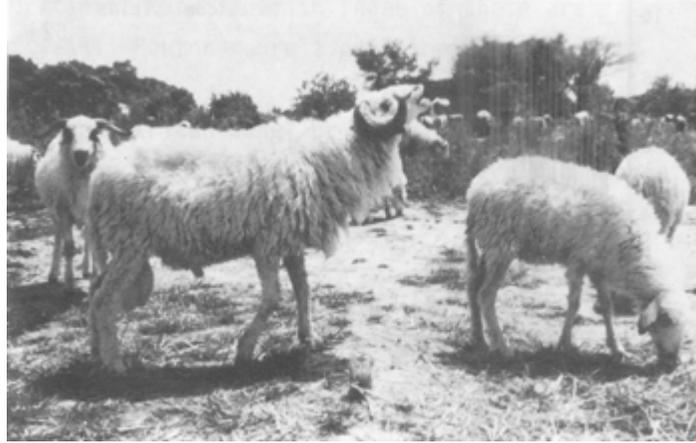


Figure 61 A Macina flock in the Niger river inundation zone in Central Mali

Horns: well developed with deep grooves in males (65 per cent), classic spiral "ram's horn" in shape, 0.5 per cent have multiple horns (4.0 per cent reported to have multiple horns in early 20th century); 8 per cent females carry weak horns or scurs. Ears medium length (12 cm), wide, pendulous. Toggles (apparently absent in original stock) in 15 per cent of animals. Neck short. Chest narrow and shallow. Prominent withers. Back straight. Croup tucked and thinly fleshed. Legs long and lightly fleshed. Tail thin, descends to below hocks.

Colour generally white, variously spotted with black and red particularly around eyes and ears. Coat of coarse wool mixed with hair, to forehead and knees and hocks but underside bare.

Goundoun is similar in most respects.

Products. Wool; milk; meat.

Productivity.

REPRODUCTION. *First lambing*: 500 ± 108 (s.d.) days, range 371-766 (n=7). *Lambing interval*: said to lamb twice a year; observed data 251 ± 73.4 days, range 170-485 (n=84); aseasonal, probably related to conditions in inundation zone. *Multiple births*: twin 3.1 per cent, triplet very rare. *Litter size*: 1.03. *Annual reproductive rate*: 1.5.

GROWTH. *Birth weight*: 2.7 ± 0.62 kg (n=48). *Height for age*: 10 days-3.9, 30-5.9, 90-10.3, 150-14.4, 240-19.0, 365-24.4, 550-29.4, 730-32.7 kg.

Mature weights: males attain 60 kg.

MILK. *Lactation length*: 135 days (range 85-165). *Yield*: 50 kg Figure 62.

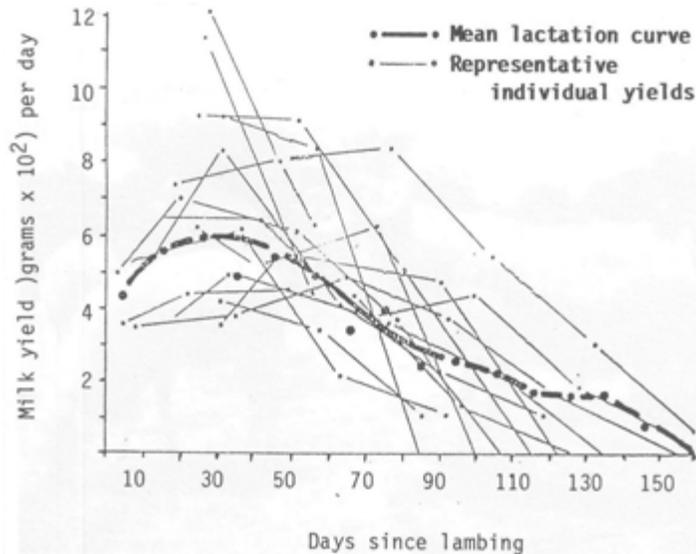


Figure 62 Lactation curves of Macina sheep under simulated traditional management

WOOL. *Yield:* 2 clips per year total 685 ± 42.8 g (males 836 ± 52.5 g, females 534 ± 65.0 g); females produce significantly more wool in wet season (1.92 g/d) than in dry (1.21 g/d); males similar (2.53 g/d, 2.20 g/d). *Fibre length:* 4.6 cm (reported to be up to 30 cm). *Fibre diameter:* 39 μ m with CV 41 per cent in lambs but 55 per cent in adults indicating fine and coarse components; about 10 crimps per 100 mm. Resistance 14 g. Very little grease. Used mainly for blankets and coarse cloaks.

MEAT. *Dressing percentage:* 40. Meat has very little fat.

Research. None current. Formerly crossed (1905-1940) with Merino to improve wool production (quantity and quality) but products not accepted by traditional owners due to lack of hardiness and low breaking strain of wool. Some detailed field studies and rapid surveys.

References. Henry, 1918; Curasson, 1930; Doutressoulle, 1947; Ibrahim, 1975; Dumas, Lefèvre & Deslandes, 1977; Wilson, 1981; 1983a.