

EXOTIC SHEEP

KARAKUL

Synonyms. Astrakhan; Persian Lamb.

Origins. Pelt producing sheep probably originated in the Near East (Syria, Jordan and western Mesopotamia). Karakuls were established about 1200 years ago in Bokhara and China. Karakuls were imported to southern African in 1907 from Germany to where they had first been introduced during the last few years of the 19th century.

Sub-types and races. Types are classified according to colour and pelt value. Mutton and wool types are being developed.

Distribution. The main pelt producing countries are USSR, Afghanistan, Namibia, the Republic of South Africa and Iran. Karakul are also found in Czechoslovakia, the German Democratic Republic, the Federal Republic of Germany, Austria and other European countries.

In Africa the major populations are in the Republic of South Africa, Namibia and Botswana, with small numbers in Angola and a very few in Rwanda: there may be a few crosses remaining from an original importation of 33 into Mozambique during the 1950s. In colonial times Karakuls were imported to Tanzania (then German East Africa), 12 rams introduced in 1907 producing 20 000 halfbreds by 1913. Karakuls were also imported, in the late 1920s, to the French Sudan (now Mali) in an attempt to produce pelts from the Black Maure sheep. In 1985 there were 1.4 million Karakul in Namibia, to where they were introduced in 1907, equivalent to about 66 per cent of the national sheep flock. The breed was introduced to south-west Botswana in 1953 and numbers had increased to about 30 000 on 200 farms by 1978 but in 1987 numbers had declined to about 14 000 in 80 flocks: the Smallstock Unit of the Botswana Animal Production Research Unit ceded 16 Karakul rams to farmers in 1985. Angola imported Karakuls from the United States of America between 1945 and 1959 (when 47 males and 77 females had been imported) and there were further importations of males from Austria in 1970. The maximum numbers of sheep with Karakul blood in Angola were 30 000 in 1969 but Karakul breeding was abandoned in 1975 although there is now renewed interest there in its use as a meat breed. Rwanda imported 2 rams and 10 ewes in 1983 for cross-breeding experiments with other exotic types and with local sheep.

Ecological zones. Arid to hyper-arid. In south-west Botswana rainfall is less than 200 mm per year: maximum temperature in January averages 35.8°C, minimum temperatures in July average 0.9°C and there are 35 frost nights per year. Carrying capacities of these areas are estimated at 27 ha/TLU. Low based vegetative cover is characteristic of the area and major grass species are *Stipagrostis* and *Aristida* while shrubs include *Acacia*, *Boscia* and *Rhizogum trichotomum*. The fruits of *Citrullus lanatus*, *C. naudinianus* and *Cucumis africanus* are important food and water sources in the winter.

The Rwanda highlands (1400 m, > 2000 mm rainfall) would not appear to provide an appropriate environment for this breed.

Management systems. Commercial ranching and pastoral. Flocks are very large in Namibia. In Botswana there are 11 "commercial" fenced farms

averaging 7100 ha in area with a mean flock size of 550 animals: flocks grazing on communal pasture average 170 head. Flock structures are related to pelt production (for which animals must be slaughtered immediately after birth) and are comprised of > 95 per cent females. A total of 16 rams was provided to farmers in Botswana in 1985 under the ram subsidy scheme operated by the Animal Production Division.

Physical characteristics. Large size. Weight: male 54 kg; female 41 kg. Head very strong, profile long and straight or very slightly convex in males. Horns: usually present in males, slightly ribbed and spiralling backwards and outwards, then forwards. Ears medium length and pendent. Neck short and thick. Chest well developed. Withers prominent and level with sacrum. Back long and slightly dipped. Legs medium length and relatively well fleshed. Tail very fat with thin terminal portion figure 97 . Marked sexual dimorphism with males much larger than females.



Figure 97: Karakul ram and ewe in a commercially managed flock near Bokspits in south-west Botswana

Colour variable but for pelt production grey is preferred, with black next: mixed colours are not liked in the pelt trade. Homozygous grey is lethal. Coat of coarse wool in adult: the skin of the new born lamb varies in texture figure 98 and is the pelt of commerce.

Products. Pelts; (wool);(meat).

Productivity

REPRODUCTION. *Age at first lambing:* 446-672 days in South Africa depending on ewe's own birth season, earliest in ewes born in Oct, latest in ewes born in Mar. *Lambing interval:* 8.5 months (n=1305) in south-west Botswana. *Multiple births:* very rare; 19 of 3578 parturitions in Botswana traditional system gave rise to twins but 44 of 828 on Lobu station were twin parturitions. *Litter size:* 1.005 in Botswana traditional system; 1.05 at Lobu. *Fertility* (ewes lambing/ ewes joined): 84.4 per cent at Lobu station Botswana in 1985. *Oestrus cycle:* 18.9 ± 8.7 days (n=1081) in Namibia with heat lasting 25.2 ± 12 hours (n=3031); heat usually starts during daylight hours.

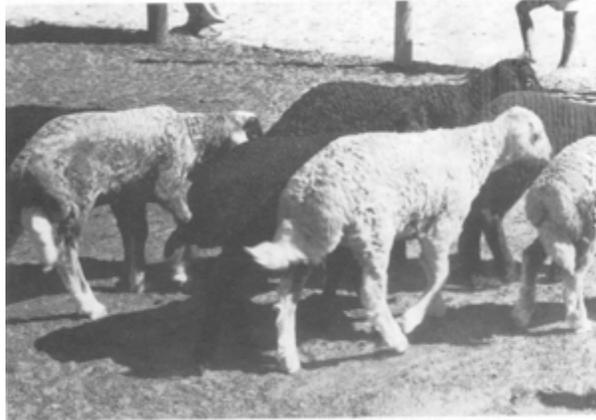


Figure 98: Karakul lambs showing variation in pelt types

GROWTH. *Birth weight:* 4.23 kg in Angola. *Weight for age:* 60 days-12.8, 120-19.7 kg in Angola. *Average daily gain:* birth-60 days -142, birth-120 -128 g in Angola.

WOOL. In Botswana 4488 kg of wool was sold to a cooperative by 171 farmers in 1985.

MEAT. *Dressing percentage:* 55.6 for 3 sheep averaging 17.6 kg live weight in Angola. *Carcass composition:* 61.3/35.1/3.5 per cent lean/bone/fat [tail presumably excluded] in Angola.

PELTS. Lambs used for pelt production are slaughtered the first day after birth, otherwise the characteristic curls and patterns disappear. Slaughtering and skinning is done by knife and by hand. Tissue and fat are removed with a knife and blood and dirt washed out with cold water. The wet pelt is spread, without fixing, on a frame covered with jute and dries in this form in the air figure 99. Most pelts are shipped to London for classification according to a standard system figure 100). The prices of pelts are related to:

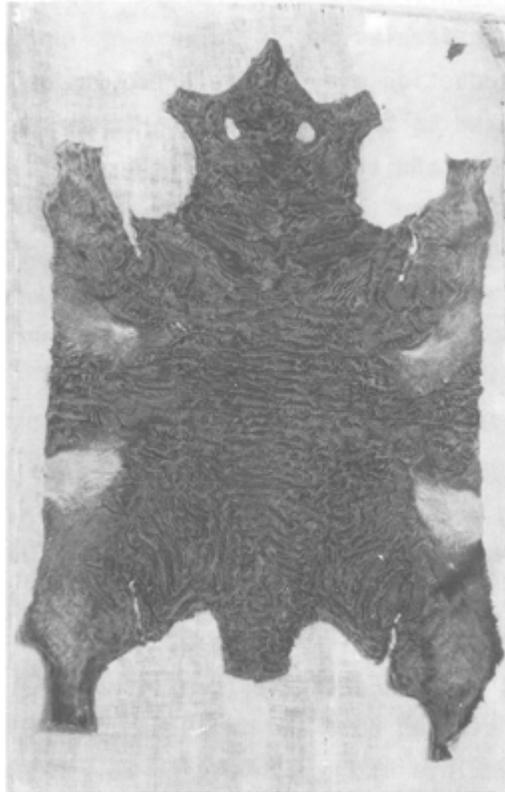


Figure 99: A Karakul pelt drying on a jute frame

Colour. Grey pelts are better priced than black ones. Prices for chequered pelts are *very* low owing to a low demand and inferior quality. Botswana production of black and chequered pelts is higher than the southern African (SWAKARA) average, whereas the production of grey, white and brown pelts is lower .

< - ----(decrease)-----Hair length and spacing----- (increase)---- + >
(curl size)

	Short (small curl)	Medium (medium curl)	Long (large curl)	Overgrown
Galliac Water-silk Shallow	S D light P	D flat D	O	RF
Shallow developed and Developed shallow	F M	KF	NF	RB ■
Ribbed	C	T	V	
DS/PC and Pipe Curl	G	KC	NC	RC

^
Curl development

v

Figure 100: Hudson's Bay and Annings classification of Karakul pelts from southern Africa

Pelt size. Pelt size depends on litter size and the nutrition and age of the ewe. *Pelts smaller* than a standard fetch much lower prices.</p>

Curl type. The breeder distinguishes among the shallow types in Galliac (almost without curls), Watersilk, Shallow and Shallow developed, and among the curl types in Developed shallow and Pipe curl, with many intermediate types. The shallow types were bred from the curl types in the 1920s. Only 4 classes are recognised on the market, these being Shallow, Developed, Ribbed and Curl. Better prices are achieved for shallower types.

Hair length and curl size. Prices are affected by hair length and curl size. "Good" is short hair or small curls and "bad" is overgrown hair or curls. Overgrowing is more common in years of good nutrition.

Hair quality and pattern. Hair quality is determined by lustre and texture while pattern has a considerable influence on the attractiveness of a pelt. Hair quality and pattern therefore have a high economic value.

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

References. APRU, 1986; de Almeida & Pimental, 1986; Faure, 1986; Martins, 1988; Matter, 1988.

MERINO

Origins. The Merino is native to Spain. Its major strongholds as a wool breed are Australia (where most research has been done) and Argentina, and as a mutton breed in Germany and some other countries.

Sub-types and races. Many different types have been developed for different qualities of wool, for meat and most recently for prolificacy.

Distribution. In Africa there are large populations of Merinos in the Republic of South Africa, in Lesotho, in Zimbabwe (where they are equivalent to about 13 per cent of the "commercial" flock -- the Dorper comprising 65 per cent of this group), and in Kenya. Small populations exist elsewhere and there have been some notable failures in attempted introductions, for example in Mali.

Ecological zones. Semi-arid to sub-humid, the latter mainly at medium to high altitudes in Kenya and in Lesotho.

Management systems. Ranching and agro-pastoral.

In Zimbabwe commercial flocks are fairly large to large with 46 per cent of flocks having > 100 sheep, these flocks comprising 83 per cent of the sheep in this sub-sector.

Merino sheep were introduced to Lesotho in the late 19th century with Angora goats (p.114). The administration imported 85 rams in 1910 and 286 in 1910. Lesotho imported 1799 rams and 707 ewes from South Africa in 1986 when Merino numbers were estimated at 1.5 million. Most sheep and most imported rams are owned by small farmers organized in 4234 producer groups figure 101:. About 30 per cent of all households own sheep and/or goats, slightly more owning sheep than goats. Flock sizes are related to the age of the household head, owners > 60 years having 49 sheep, those 41-60 years 44 sheep and those 21-40 years 41 sheep. 'Mafisa' is a customary exchange system which can greatly augment the current flock of owners with small numbers of animals. The proportion of livestock (animal sales + fibre) to total income increases with age of owner but is about 25 per cent overall.



Figure 101: An imported Merino ram in a producers' cooperative flock in Lesotho

Physical characteristics. Small to large size. Weight: females 40 kg in Zimbabwe, 30 kg in Lesotho. Different types differ in conformation and

productivity. Even "meat" types produce reasonable quantities of good quality wool.

Products. Wool; meat.

Productivity.

REPRODUCTION. *Multiple births:* fairly common in comparison to African indigenous sheep in Zimbabwe; very uncommon in Kenya, 97 per cent single, 3 per cent twin. *Litter size:* 1.35, 1.27 and 1.16 ± 0.079 (s.e.) (n=277) at Henderson, Grasslands and Makoholi stations in Zimbabwe. *Fertility* (=ewes lambing/ewes exposed): 88, 88 and 68 per cent at 3 Zimbabwe stations. *Lambing percentage:* 90 on combined Quthing and Mokhotlong studs in Lesotho (n=500). *Lifetime production:* 5.6 breeding seasons in flock at Grasslands.

GROWTH. *Birth weight:* 4.5, 4.2 and 3.4 ± 0.09 (s.e.) kg (n=53) at 3 Zimbabwe stations. *Weight for age:* 135 days (weaning)-14.8 and $20.4 + 1.21$ (s.e.) kg (n=36) at Grasslands and Makoholi singles being 4 kg heavier than twins at the latter. *Average daily gain:* 238 g to 40 kg at 150 days when intensively fed at Henderson; birth-weaning - 148, post-weaning - 60 g in Kenya. *Post-partum weights:* 47.9 ± 0.90 (s.e.) kg (n=63) at Makoholi.

WOOL. *Yield:* rams 5.2 kg, ewes 3.4 kg on Kenya station; 2.2-2.5 kg on Lesotho sheep cooperatives figure 102 where wool is shorn, sorted and sold by producer groups figure 103.



Figure 102: The shearing and sorting shed in a Lesotho wool/mohair producers' cooperative

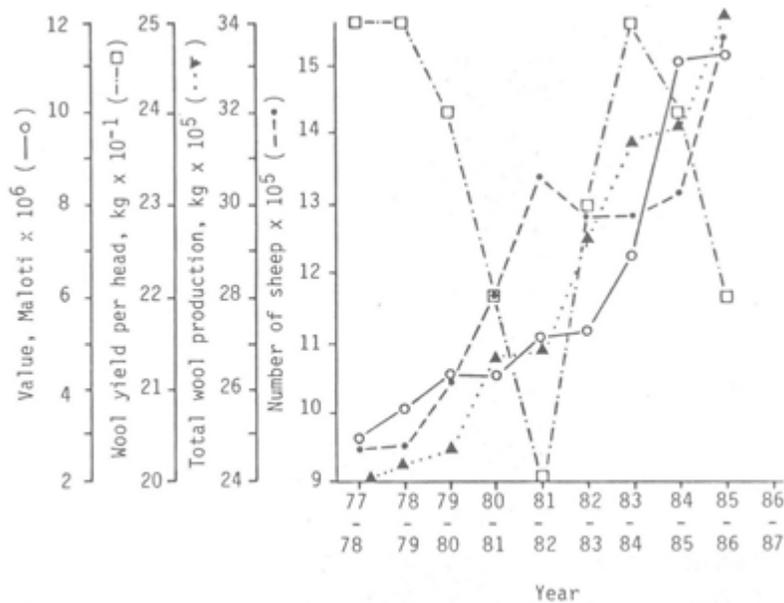


Figure 103: Technical and financial productivity of Merino sheep in Lesotho

Total wool production in Kenya rose from 823 280 kg in 1957 to 1.6 million kg in 1967, then to 2.1 million kg in 1968 but in the 1980s it has varied between 1.2 and 1.4 million kg per year. The share of wool in total agricultural production in Kenya dropped from 0.6 per cent in 1964-1972 to 0.1 per cent in 1973-1981.

MEAT. *Dressing percentage*: 44 in Kenya; 40.1 ± 2.45 (s.e) (n=12) at live weight of 37.1 ± 2.91 kg at an age of 284 ± 5.3 days in Zimbabwe.

Research. Formerly at Naivasha by FAO Goat and Sheep Project in Kenya. Department of Research and Specialist Services, P.O.Box 8100, Causeway, Harare, Zimbabwe.

References. de Bruijn, 1986; Mburu, 1986; Makhooane, 1986; Chifamba et al, 1988b; L.A. McLeod, pers.comm.; H.P.R. Tawonezvi, pers.comm.