

## Australian goat leather

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Leather is the tanned skin of the animal. Tanning preserves the physical properties of the skin and gives the manufacturer a material to work with.

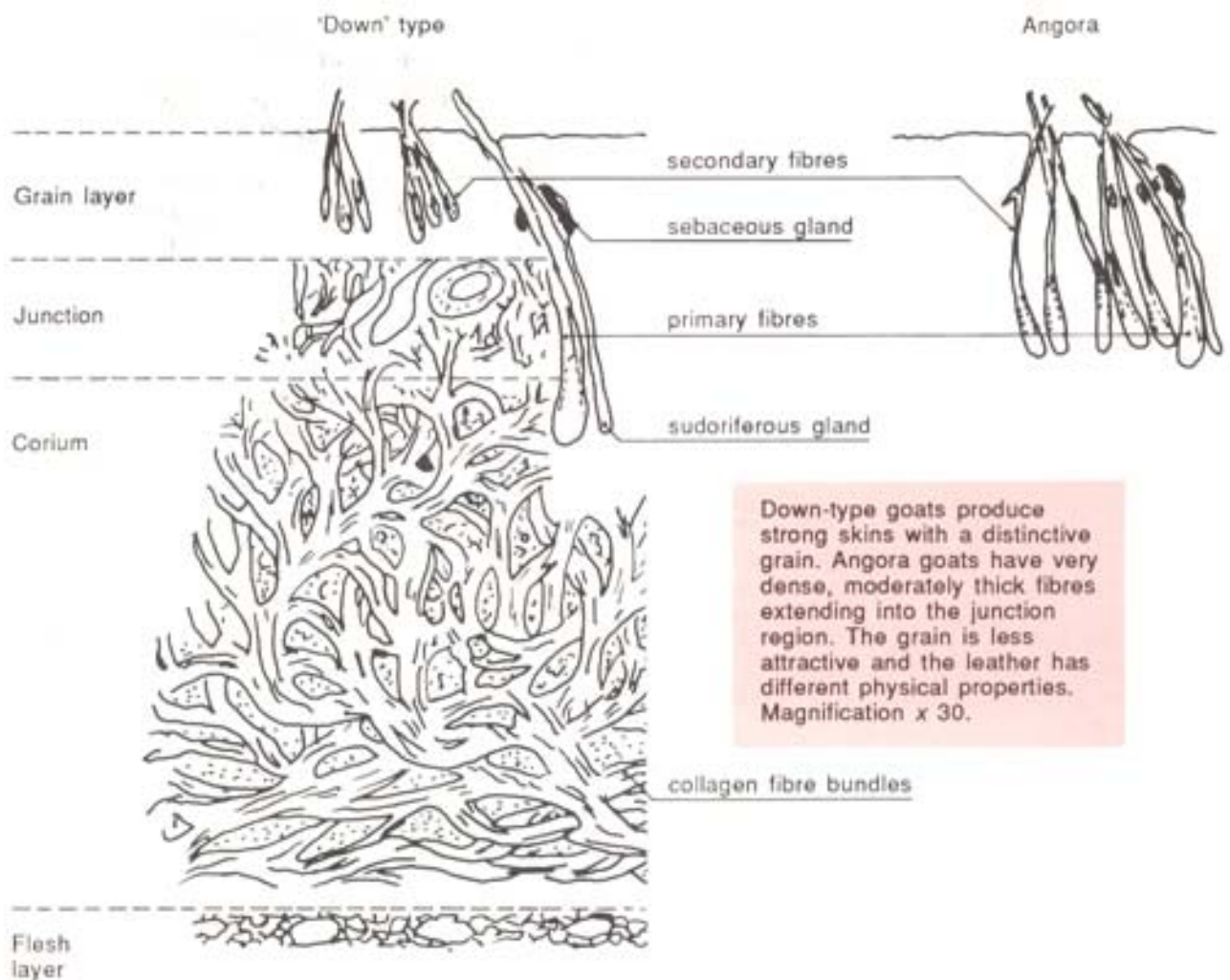
Most goats (eg milch goats) produce fibre from two types of follicle in the skin. The larger follicles (primary) produce thick, medullated fibres, while the more numerous secondary follicles produce fine, non-medullated fibres known as 'down'. It is the size and pattern of the holes left by the fibres that impart a grain to the surface of goat leather; the thicker the fibre, the bigger the hole. (see figure 1.)

**Figure 1. Australian goat leather**



**Table 1. Some uses of non-Angora goat leathers**

Age of animal	Description of leather	Possible use
Kid	Soft fine grain	Gloving leather
Young goat	Clear fine grain Area < 0.4 m <sup>2</sup> Liveweight < 18 kg	Upper leather
Mature goat	Uniform grain Area > 0.4 m <sup>2</sup> Liveweight > 18 kg	General
Other	Poor grain, blemished	Liners



**Figure 2. Cross-section of the skin of a goat showing the two types of hair follicle**

Goat leather is considered a utilitarian product, and is in demand for fashion goods, footwear, luggage and bookbinding. However, leather from Angora goats has different physical properties; it is lighter and more elastic, though less sturdy. It is used for women's clothing and linings and for preparing as chamois leather.

Leather from young, healthy non-Angora goats typically combines strength with lightness and has an attractive grain that resists abrasion and accepts brightly coloured dyes. However, the smallness of these skins is a disadvantage. Table 1 shows some of the uses of non-Angora goat leather.

### **Australian goat types**

**The feral goat** (sometimes called the bush goat when it is husbanded) is the most common type of goat in Australia. It is found throughout the less densely settled parts of the country. Feral goats are fundamentally milking goats, so their skin structure is like that of down-type goats (see figure 2).

Feral mobs contain goats of both sexes, all ages, liveweights and colours, and all lengths of guard hair and down hair. Although breeding is influenced by season, a large proportion of the does in a feral herd can be either pregnant or lactating at any given time. Feral goats are generally free of serious disease, but they are commonly infested with lice.

The feral goats rounded up by stockmen and sent to abattoirs have skins of all the types described in table 1, usually showing the effects of transport stress and injury.

**Cashmere goats** originated in the feral goat population, from which animals with significant amounts of down were selected and sent to properties for breeding. Their skin structure is like that of milch goats. When these animals are sent to slaughter they are usually in reasonable body fat condition and free of disease.

**Boer goats** and feral goat crosses are similar to the cashmere goat in skin structure but if well conditioned at slaughter, may have fat infiltration

below the grain layer. Excessive fat can produce, after tanning, an adverse condition called 'double hiding'.

**Angora goats** produce mohair, a lustrous, rapidly growing fibre that requires shearing twice a year. They are well husbanded. They differ from other types of goats in both skin structure and fibre structure (see figure 2).

**Milch goats** are a small but productive group of well husbanded animals. They are usually slaughtered either as kids or when they are aged and unsound.

### Australian production

In Australia, goat skins are simply a byproduct from the slaughter of goats for meat (table 2), of which about half retain the skin on the carcass. Most abattoirs supply goat meat for export and for the manufacturing meat trade, and accept both feral and domesticated goats of all types. A few specialised abattoirs supply premium meat for metropolitan butchers, and these abattoirs accept only young animals of high quality. Skins from these abattoirs are of uniform quality within each line—Angora and non-Angora.

For many years flaying (removing the skin) was done by hand, which resulted in unnecessary knife cuts to the goat skin. Most abattoirs have now converted to mechanised drum-type skin-pullers, and others are experimenting with using hydraulic or drum-type pullers on inverted carcasses. Mechanisation virtually eliminates knife cuts, but can distort the shape of the skin slightly.

Fresh skins can deteriorate (putrefy) very quickly, so if they are not being tanned on the day of slaughter they must be preserved (cured). The method of preservation depends on the destination and value of the skins, and on the most economical method for the abattoir. The traditional method in Australia used to be simple air drying in the shade but most abattoirs have now changed to salting, with the most common procedure being drum salting.

**Table 2. Estimated Australian production of goat skins (2001)**

Number of skins ('000)	Description	Skin area (m <sup>2</sup> )
18	Angora	<0.4
36	Angora (shorn)	>0.4
80	Quality upper	<0.5
75	Quality older	>0.5
195	Variable quality	<0.5

The acceptance by abattoir managements of salting as the preferred means of preservation is a significant advance, but it has not been accompanied by any system of sorting or grading the skins before sale. Most sales are on a 'run of skins' basis or on a system of payment after the skins have been graded at the tannery. An obvious disincentive for buyers and abattoirs is that the number of skins being traded is relatively low.

At the abattoir it is possible to sort not only on blemishes and breed but on the potential for recovering cashmere. For much of the year (autumn to spring) non-Angora goat skins carry cashmere (a valuable fibre), which can be present in commercial amounts. Cashmere can be salvaged by clipping or by simple fellmongering techniques, but this is not being done in Australia.

### Quality of skins

The quality of goat skins depends on the basic breed of the animal and the extent of damage done to the skin before, during and after slaughter.

Examples of damage caused before slaughter include lesions from external ectoparasites like ticks and mites; scarring caused by wire fences, the horns of other goats, vaccination and shearing; and bruising from trucking. Slaughter damage includes the scars caused by flaying. Damage done after slaughter comes from poor preservation and transportation.

Since the adoption of mechanised flaying techniques and drum salting, the incidence of unnecessary blemishes on Australian goat skins has dropped markedly.

Damage from external parasites is confined to a few isolated areas and is not a significant problem. The withholding period from shearing or vaccination to slaughter needs to be researched but is not a serious cause of damage to skins.

Recent research has shown that the physical properties of Australian goat skins are excellent and that the grain can be very attractive. This latter property is a function of the size of the animal; a high proportion of non-Angora skins less than half a square metre in area are reasonably fine-grained.

Substance (thickness of the skin) is related to nutrition in the four weeks before slaughter. Most domesticated goats have good substance. Some feral goats have poor substance; others are so fat that although their substance is good the corium is infiltrated with a layer of fat that weakens the tanned leather (see figure 1).

### **Advice for producers**

- Keep yards, fences and trucks in good repair to eliminate injury to animals.
- Vaccinate in the neck region.
- Leave at least three weeks between shearing or vaccination and slaughter.
- Minimise shearing cuts.
- Consider tipping the horns of breeding herds.

### **Conclusion**

Exports of salted and pickled goat skins receive relatively low prices.

Australia can produce excellent goat skins of all sizes: the genotypes are superior, the standard of animal husbandry is high, and the increasing mechanisation of abattoirs makes it possible to turn out skins of good quality. Moreover, the quality of skins will continue to improve as feral goats come to constitute a smaller proportion of the goats being slaughtered.

### **Further information**

For further information on Australian goat leather and all aspects of goat production, contact your nearest office of NSW Agriculture.

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#### **DISCLAIMER**

The information contained in this publication is based on knowledge and understanding at the time of writing (October 2003.) However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of New South Wales Department of Agriculture or the user's independent adviser.