Goat Farming — profitable and productive

2000 Revised Edition
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The goat industry has great potential for growth. Two factors underpin this potential: Australia has vast areas of land suitable for goat production; and markets for goat products, especially goatmeat, are very strong.

Although Australia produces a minor percentage of the world’s goats and goat products, it is the world’s largest exporter of goatmeat. The traditional ‘big’ players in goats cater to subsistence needs, with huge herds providing a self-sufficient supply of goatmeat to a population with a strong associated culinary tradition. The fact that the world’s major producers are not major exporters, places Australia in a commanding position.

Goats are multi-purpose animals, providing milk, meat and fibre. They also benefit pasture by helping to control many weeds. Potential savings in labour and chemicals and in reclaiming land have hardly been tapped in most grazing areas of Australia.

Being agile, goats can be grazed on steep, inaccessible and weed-infested country provided that suitable fencing and management practices are implemented. Goats have successfully helped control and/or have assisted in the elimination of many weeds in Australia including:

- gorse, briar, blackberries;
- scotch broom;
- saffron, variegated, nodding, spear and artichoke thistles; and
- serrated tussock.

Goats have been used in the management of Pinus radiata forests by reducing herbage growth to allow easier access during pruning and thinning and by reducing the amount of pruning required.

Industry Structure

The goat industry has a similar structure to the sheepmeat and cattle industries — the Goat Industry Council of Australia (GICA) is its peak national body and an affiliate member of the National Farmers’ Federation (NFF). GICA is made up of representatives elected by each state farmer organisation and their goat industry committee. The Boer, Cashmere and Mohair breed societies are affiliate members of GICA.

GICA’s responsibilities include strategic planning in conjunction with Meat and Livestock Australia (MLA). Together, they set objectives for industry marketing, communication, research, producer training and industry development.

Each year MLA participates in seminars throughout the country. These events are organised by state farmer organisations and your local Department of Agriculture to meet the aims and objectives of the strategic plan.

This Publication

Most of the text in this publication is based on the booklet, Goat Farming – profitable and productive, which was published by the Rural Industries Research and Development Corporation (RIRDC). This edition is essentially an update of that booklet which was authored by Bruce McGregor and based on excerpts from RIRDC’s A New Rural Industries – A Handbook for Farmers and Investors. The ‘Global Goatmeat Situation’ information is taken from an MLA paper by James Kellaway, Growth in the goatmeat industry: is it sustainable? Copies of these and all other related publications can be obtained through Rural Connect.

This publication includes contact details for organisations — industry, government and interest groups — that can assist any producers interested in getting involved in the goat industry.

Thanks

GICA and MLA appreciate RIRDC’s and Bruce McGregor’s involvement in the evolution and reproduction of this publication. Thanks also to all the organisations listed at the rear of this book and, in particular, Gaillie Abud, Denise Cunningham, Heather Osborn, Craig Clancy, Peter McInnes, Jane Erkens, Barbara O’Shea and Carolyn Gould.

Justine Hall,
President, GICA
Introduction

Goatmeat production provides a viable alternative for current and prospective farmers and meat manufacturers. The trade is characterised by demand outstripping supply — a rare and enviable situation for any producer. This demand, spurred by health-conscious Western consumers and a never-ending stream of ethnic immigrants to the West, appears to be sustainable.

Australian goatmeat production is currently valued at approximately $20 million per annum with opportunity for considerable expansion. Australia has the required land space and climate for commercially viable goatmeat production.

Australia is the world’s leading goatmeat exporter, with the majority of meat originating from captured wild goats. Orders for goatmeat usually exceed our capacity to supply. Unfortunately these markets depend on the low cost and erratic sources of wild goats from semi-arid rangelands. Expanding potential markets in South East Asia cannot be reliably supplied, as production of farm-reared goats is low. Unsupplied markets exist in all large cities of Australia. The goatmeat industry needs a greater supply of quality, market-specific goatmeat, which means more goats on well managed farms in reliable grazing districts.

The Australian goatmeat industry took a step forward in the mid-1990s with the introduction of the Boer goat. These goats provide excellent crossbreeding potential and were imported from South Africa for their meat production yield, high fertility, good mothering ability and ease of management.

The continuing development of the goatmeat industry is dependant on providing continuity of supply, improved carcase quality, increased numbers of goats farmed for meat, forward contracts and marketing alliances.

The Global Goatmeat Situation

Although global figures for goat production are rarely entirely accurate, it is accepted that Australia is the world’s largest exporter of goatmeat. This highlights an interesting fact about the trade: the largest producers of goatmeat are also the largest consumers but not the largest importers or exporters. These countries, in order of herd size, are China, India, Pakistan, Bangladesh and Iran.

In many developing countries catering to subsistence needs, goatmeat provides a principal source of animal protein. These markets are, in the main, self-sufficient and have a strong and often ancient tradition of eating goatmeat. The consumption of goatmeat in these countries is, of course, related to traditional farming techniques and the adaptable nature of the goat.

Opportunities

There are few, if any, religious or cultural taboos limiting goatmeat consumption. Unlike beef and pork, goatmeat is an important component of the traditions of the Hindu and Muslim faiths (35% of the world’s population).
Goatmeat

Australia’s major customers include the US, Taiwan, Canada, the countries of the Caribbean and South East Asia as well as small but growing volumes to South Africa and the Middle East.

There are three areas where Australia’s goatmeat is currently in demand and has great potential to expand:

- **Western, health-conscious consumers**
  Goatmeat is exceptionally lean and low in fat, making it an ideal choice for health conscious consumers. Unlike sheep, the subcutaneous fat cover is characteristically thin on the goat — fat cover on the loin of crossbred farm goats has been measured at 2.3 mm compared to 5 – 6 mm in sheep of the same sex and similar age. Recent tests have also suggested that goatmeat cholesterol content is very low.

- **Ethnic immigrants to the West**
  The opportunity for export to the ethnic markets of Western countries can best be observed by looking at the US. Export volumes from Australia to the US have been growing at an average annual rate of over 30% since 1990 due, in part, to the continued influx of ethnic immigrants. Although goatmeat is far from a familiar fare to most Americans, the changing mix and diversity of cultures is creating a significant market. This includes the growth of ethnic restaurants which may serve to introduce goatmeat to Western consumers.

  The US is a major importer of Australian goatmeat, as well as taking almost a third of the world’s exports.

  Additionally, goatmeat is an essential food item among developing Hispanic, African, Asian and Middle Eastern nations and throughout the Caribbean. Demand from these countries continues to outstrip supply. This demand is assisted by the introduction of respective government programs to raise the intake level of protein among their massive populations.

**Future Strategies**
Currently, the Australian industry can sell carcases of almost any weight and age to both the local and export markets. However, to ensure the construction of a firm customer base, the production and marketing of consistent quality lines of goatmeat in

### Comparison of carcase composition of different animal species

<table>
<thead>
<tr>
<th></th>
<th>Goats</th>
<th>Sheep</th>
<th>Cattle</th>
<th>Pigs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Muscle % of Carcase Weight</strong></td>
<td>65</td>
<td>55</td>
<td>60</td>
<td>50</td>
</tr>
<tr>
<td>(range)</td>
<td>(55-68)</td>
<td>(45-65)</td>
<td>(50-70)</td>
<td>(35-64)</td>
</tr>
<tr>
<td><strong>Fat % of CW</strong></td>
<td>20</td>
<td>30</td>
<td>25</td>
<td>38</td>
</tr>
<tr>
<td>(range)</td>
<td>(6-24)</td>
<td>(8-40)</td>
<td>(10-35)</td>
<td>(25-45)</td>
</tr>
<tr>
<td><strong>Bone % of CW</strong></td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>(range)</td>
<td>(12-22)</td>
<td>(7-24)</td>
<td>(9-20)</td>
<td>(8-16)</td>
</tr>
<tr>
<td><strong>Cholesterol (mg/100 g)</strong></td>
<td>5-39</td>
<td>52-77</td>
<td>42-78</td>
<td>66-98</td>
</tr>
</tbody>
</table>

*Source: Proceedings: Nutrition Society of Australia, Dec 1997*
response to customer specifications must be established.

In Australia, there is now a need to develop an organised line of goatmeat supply rather than continually harvesting a wild resource. Affluent markets are seeking a farmed, prime product. The establishment of grower cooperatives and both horizontal and vertical alliances could add substantial knowledge, benefits and uniformity to product specifications. A cooperative approach may help achieve continuity of both supply and market specification.

Markets and Marketing Issues

Goatmeat is marketed under various categories.

- **Commodity goatmeat** is sourced from a variety of breeds and ages. It is a lower cost product consumed domestically and exported to well-established markets in Taiwan, the US, Canada, various countries of the Caribbean and South East Asia. Of these, Taiwan has traditionally been the single most important — both in size (taking 49.8% of goatmeat exports in the year ended December 1999) and because of the premium paid for "skin-on" product.

- **Prime kid** is traditionally regarded as lean, tender and juicy and is sold under many names. If the carcase weighs under 12 kg and the meat is pale pink in colour, the product can be branded ‘capretto’ — the Italian name for tender, un-weaned kid.

- **‘Chevon’** is the description given to prime farmed ‘young goat’, no more than two-tooth, with no signs of male secondary sexual characteristics. Markets for high quality, farmed goatmeat are growing, as is Australia’s production capability. This product can offer quality-controlled goatmeat and regular supply — two components not traditionally associated with goatmeat. High-value and expanding markets in Europe and the US can be targeted for chevon. The chevon carcase is larger than the capretto carcase.

Some markets have very specific requirements. Specified cuts have been sold to restaurants but this trade is severely limited by the shortage of quality animals. Smallgoods manufacturing depends on a supply of boneless meat, generally obtained from the slaughter of older goats. Currently, demand for this type of goat is relatively low. In past years live goats and carcases have been airfreighted to markets in the Middle East. Potential exists to develop chilled primal markets in Asia but a predictable supply of quality animals must be maintained.

Goats are currently exported live, mostly from Western Australia to markets in the Middle East and Asia. Malaysia is Australia’s largest single market for live goats, taking from 20,000 — 30,000 head per year. The United Arab Emirates is also a large market, importing about 10,000 head per year. The majority of the trade is in wild Australian goats, with an increasing number of farmed Boer cross goats included as numbers increase.

Overseas restaurants and butchers prefer young animals with carcases up to 12 kg, although some wholesalers prefer heavier carcases. Religious festivals, i.e. Christmas, Easter and Ramadan provide peak demand for quality carcases.

Prices vary with markets and season, and range from $0.50 up to $5.00/kg carcase weight (cw), with “commodity goat” usually returning around $1.60/kg (CW) to the producer.

There is a need for cooperation between suppliers, wholesalers and retailers or exporters. High-value capretto markets can be further
developed as seasonal markets that match the current supply situation.

Meat and Livestock Australia has developed information packages for restaurants. These show how chefs can prepare premium dishes from various goatmeat cuts. AU SM EAT, which is responsible for the description of export carcases, coordinated the development of a Livestock and Goatmeat Language so that purchasers can specify their requirements precisely.

Breeds

All Angoras, Cashmeres, dairy goats, wild goats and the improved Boer goat produce meat. Boer goats, from South Africa, are selected shorthaired goats specifically bred for meat. Some Boer goats also produce Cashmere, and crossbred Boer / Cashmere goats are becoming more numerous. A range of pure and crossbred Boer goats is available.

Boer goat

The Boer goat, originally from South Africa, is the ‘specialist’ goatmeat breed. Its great value comes from providing the goat industry of Australia with a crossbreeding option to breed even more versatile animals. For instance, crossbreeding Cashmeres with Boers for meat production will result in a proportion of progeny being suitable for shearing.

Boer goat traits
- Selectively bred for meat;
- Heavier than any breeds;
- Higher dressing percentage;
- High fertility;
- Reach slaughter weight faster;
- No shearing, crutching, or mulesing.

Harvesting, Handling and Marketing Requirements

Market requirements can vary with seasons and between years so it is important to contact potential buyers, agents or your association in advance to ensure that you clearly understand the current market requirements. For meat markets it is essential to know which markets are being targeted and plan appropriate mating and nutrition practices to suit.

For the best returns, sell:
- healthy, well fed, clean goats;
- goats that are in good body condition;
- fibre goats that are 3-4 weeks off shears and not in full fleece;

Using LAMBPLAN when breeding Boer goats

Australia’s Boer goat performance program operates through LAMBPLAN. Refined specifically for the goatmeat industry, LAMBPLAN produces objective, genetic evaluations of Boer goats called Estimated Breeding Values (EBVs). Goat seedstock or commercial producers use these (EBVs) to ‘shop’ for the best possible sire for their purposes.

The skill in breeding sheep and goats for any purpose has always relied on the ability of the breeder to select parent animals that have a desirable set of genes to contribute to the next generation. EBVs enable this to be done by estimating genetic traits and describing them in ways and presenting them in categories designed for a particular operation.

EBVs for goats exist for growth rates (for various weight/age classes), fat depth, muscle depth, reproduction ability, and resistance to disease and internal parasites.

LAMBPLAN can operate with any breed of goat for a number of traits, but is currently only supplied with Boer goat information.
- goats that are outside any chemical withholding period;
- quiet animals which have been carefully handled and yarded to avoid bruising and stress;
- goats with the appropriate declaration forms correctly filled in;
- goats that have been presented in compliance with Codes of Practice for transport and preparation for slaughter — including an adequate yarding time (5+ hours) for goats to empty prior to loading;
- goats ready on time for the livestock carrier; and
- the correct number of goats ready for marketing, no more and no less than has been agreed upon.

Kids being sold for high-value capretto markets have special requirements including light pink meat (these kids should not be weaned before sale) and tissue depth at the GR site of 3 to 6 mm (body condition score 1 or 2). It may be necessary to provide special nutritional management for twin-reared kids to ensure they reach marketable weight and condition at a suitable time. The supplementary feeding of grain to lactating does can improve the carcase weight, fatness and condition of kids.

As goats grow, the proportion of the liveweight that can be sold as carcase meat increases. The carcase represents about 37% of young lightweight kids but increases to about 45% for good condition goats weighing 35 to 45 kg (carcase meat percentages as high as 53% have been measured). The amount of fat in the carcase increases as their body condition score increases. Older, heavy goats can be too fat for some markets. If supplementary feeding is required, it must be carefully planned and monitored — they can become over-fat if feeding is ad lib or excessive. Goats should always be prepared to market specifications, so communication with buyers is important. Excess fat can occur in younger animals with milk teeth.

Not all abattoirs slaughter goats so processors must be located; it is always important to maintain communication with processors regarding market specification.

Production Requirements

In addition to the facilities described in chapter 5, Goat Production Requirements, goatmeat producers should have access to (sheep) yards, drafting race, weighing crate and scales.

Economics of Production

(see table).

### Average price ranges for Australian goatmeat

<table>
<thead>
<tr>
<th></th>
<th>Avg price range per kilogram (cw)</th>
<th>Avg price range per head (cw)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capretto (4 to 10 kilograms)</td>
<td>$2.00 - $5.00</td>
<td>$22 - $28</td>
</tr>
<tr>
<td>Larger Capretto (10 to 12 kilograms)</td>
<td>$2.00 - $2.50</td>
<td>$22 - $30</td>
</tr>
<tr>
<td>Goatmeat (10 to 25 kilograms)</td>
<td>$1.40 - $1.80</td>
<td>$20 - $35</td>
</tr>
<tr>
<td>Goatmeat (&gt;25 kilograms)</td>
<td>$1.20 - $1.80</td>
<td>$25 - $40</td>
</tr>
</tbody>
</table>

(cw) = carcase weight

*Source: The Australian Goat Report, 2000*
Chapter 2. Mohair

Introduction

Mohair is a textile fibre used in luxury garments. Produced by Angora goats, it is sought for its lustre, soft handle, light weight and "dye-ability". It usually commands a premium in price over wool, however, prices vary with world supply and fashion demand.

Australian production of mohair is currently valued at approximately $3-3.5 million per annum, most of which, for over 25 years, has been sold on international markets. The major producing countries are South Africa and the US (principally Texas) with total world production currently estimated at 11,000 tonnes — a 30 year low. This fall is partly attributable to the withdrawal of subsidies in the US and the slaughter of Turkish goats for meat production. These strategic changes in the world’s mohair industry provide a clear opportunity for Australia to overtake the US and become a leading mohair producer in the 21st century.

As with all goat breeds, Angoras also benefit pasture and help to control many weeds. Once the fleece reaches 6 cm or more in length (approximately halfway through the six month growth period), care should be taken to prevent entanglement in scrub.

Our best stock and our best mohair are now internationally competitive. The industry has embraced the challenge to continue to improve the national flock by fine-tuning the top bracket of stud stock and improving the general quality across the board to ensure the "average" standard of animals is world class. Marketing infrastructure is readily available and internationally acknowledged, and all mohair produced is readily sold. The challenge now is to get more goats on farms.

Markets and Marketing Issues

Australian greasy mohair is sold at auction or by private treaty through two main brokers. Mohair is generally exported in a greasy state to Italy, France, Japan, South Africa and the UK. In past years Australia has processed up to 40% of its mohair by either scouring, top-making or yarn manufacture and some finished knitwear was produced, however, most local production is small-scale. Mohair products such as yarns, rugs, knitwear and velours are imported into Australia.

Mohair prices are related to mean fibre diameter, fibre length and the incidence of impurities such as vegetable matter, medullated fibres (kemp) or stain. Of these, mean fibre diameter is the single most important factor with the price of fine kid mohair usually 200% - 400% greater than that of coarser types. The names of the main mohair micron categories ("kid", "young goat" and "adult") emphasise the strong relationship between the age of the Angora and the mean fibre diameter of the mohair it produces.

The commercial mohair industry is confined to white mohair, however there are small numbers of coloured Angoras providing small quantities of coloured fibre for the craft market.

Production Requirements

Besides the general requirements discussed in Chapter 5, Goat Production Requirements, shearing facilities are the most obvious requirement. Angoras are shorn twice each year and will also require crutching and wigging twice a year.

A shearing plant and fleece handling facilities, including a mohair sorting table, are also required. Special mohair combs are available which have more teeth than traditional wool combs.

Good nutrition is required to maintain reproduction performance of does and to maximise mohair production. Planning for shearing in regions prone to cold, wet weather includes making contingency plans for the provision of shelter for shorn goats for periods of up to 6 weeks following shearing.
Breeds

Angora goats produce mohair. During the 1970s and 1980s, "Australian" Angoras were bred up from feral foundation stock, however, the quantity and quality of mohair produced from these old strains was vastly inferior to that produced by our competitors. Over the last 10 years, Australian producers have imported the best genetics from South Africa and Texas. Leading breeders have used genetic material from both imported strains to develop a uniquely productive and robust Australian strain, with the result that the old feral-based strain is rarely seen.

The mohair industry has established a genetic improvement program for producers called MOPLAN. This program assesses the heritability of a number of desirable traits, including weaning weight, fleece weights, fibre diameter, staple length and kemp. Producers can use this information to "shop" for the best available animals for their requirements.

Harvesting, Handling and Marketing Requirements

Mohair fibre must be shorn from the goats and carefully prepared for sale in order to achieve the best possible financial return. Angora goats producing mohair must be shorn twice each year, usually in early autumn and early spring, when the fibre exceeds 10 cm. Delayed shearing will often result in a devalued clip due to cotting or other faults. Kid fibre brings the highest prices and so nutritional management and shearing management of kids is critical.

Vegetable matter (VM) contamination will result in large price discounts. When the fleece grows past about 3 months length it becomes more susceptible to VM contamination. Thereafter it is important to avoid environments that will contaminate the fleece with VM or spiny burrs. Shed hygiene standards should be followed.

Mohair must be carefully prepared and classed for sale according to the guidelines issued by the brokers. Failure to follow the guidelines will incur additional charges. Growers who are unfamiliar with clip preparation standards are encouraged to employ experienced mohair classifiers along with other shed staff at shearing time.

Fibre should be packed in wool packs, pressed to 200 kg, clearly labelled and dispatched to the chosen broker or buyer.

Economics of Production

Stud does may cost from $250 — $1000 per head but commercial fibre goats can be purchased from about $35 - $50 per head. Quality production bucks will cost from $350 - $500, with stud bucks considerably higher. If current fencing is not suitable, capital inputs will be greater.

Returns on capital vary from about 0% when significant capital is required to about 40% per
annum when benefits arise from weed control.

Although prices for fine kid and kid mohair have recently soared past $45/kg, gross margin calculations should be based on more conservative figures. Intending producers are encouraged to make their own profit/cost analyses, based on the table above.

While there are obviously significant ranges in fleece types, weights and sale prices, these figures have been simplified to allow for ease of calculation. It should be noted that inferior quality Angoras, or goats whose nutritional and other management needs have been inadequately met, may produce faulted mohair (such as crossbred types or cotts) which are saleable but at discounted rates.

- **Production costs** — allow for drenches, vaccinations, shearing, selling and fodder costs (supplementary feeding requirements will vary according to stocking rates and environmental factors).

- **Sale of cull stock** — while kids can be sold into the premium meat market, this precludes the advantages of retaining them for mohair production. Generally, the wether portion of a drop is retained for at least four shearings and then sold for slaughter, while the whole doe portion is retained in a self-replacing herd. CFA (cast-for-age) does are then sold when fibre production declines – say, at 5-6 years.

- **Weaning rates** — these work on 120% (intensive kidding system) or 80% (extensive system). A discussion of the various systems is included in the Chapter 5, Goat Production Requirements.

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**Mohair: average fleece weights and values**

<table>
<thead>
<tr>
<th>Does &amp; wethers</th>
<th>Usual type</th>
<th>Fleece wgt range</th>
<th>Approx. price range/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st shearing</td>
<td>fine kid - kid</td>
<td>0.7 - 1.2 kg</td>
<td>$30-$40</td>
</tr>
<tr>
<td>2nd shearing</td>
<td>kid - strong kid</td>
<td>1.5 - 2.2 kg</td>
<td>$25-$30</td>
</tr>
<tr>
<td>3rd shearing</td>
<td>strong kid - young goat</td>
<td>2.0 - 2.7 kg</td>
<td>$20-$25</td>
</tr>
<tr>
<td>4th shearing</td>
<td>young goat - fine hair</td>
<td>2.5 - 3.0 kg</td>
<td>$14-$18</td>
</tr>
<tr>
<td>5th shearing</td>
<td>young goat - fine hair</td>
<td>2.5 - 3.0 kg</td>
<td>$10-$12</td>
</tr>
<tr>
<td>&gt;6th shearing</td>
<td>fine hair - adult</td>
<td>2.5 - 3.0 kg</td>
<td>$5-$8</td>
</tr>
</tbody>
</table>

*Source: Goat Industry Council of Australia*
Chapter 3. Cashmere Goats

Introduction
Cashmere goats produce the premier soft handling luxury fibre, cashmere. They can also produce premium goatmeat and can be used to effectively control pasture. Cashmere goats shed their fibre annually and do not require shearing either for maintenance of fibre quality or for animal health purposes. The option of allowing goats to shed provides for a wide number of uses for Cashmere goats but precludes valuable income from cashmere sales.

Australian production of cashmere fluctuates, generally in response to fibre prices. Production in 1999 was low at about $200,000. Australian-grown cashmere has been sold on international markets since 1982.

Demand for cashmere usually far exceeds the current world production of about 4,500 tonnes (t), of which 2,500 t comes from China and 1,150 t from Mongolia. In recent years, changes to marketing and processing pipelines have disrupted prices in China.

Fleeces from Cashmere goats contain coarse hair, which has no commercial value, and a fine soft undercoat or down. It is this valuable down which is known as cashmere. Goats that grow unsuitable down (a small number) are culled for meat production. Australia’s first commercial dehairer has now been commissioned thus facilitating value adding and the export of processed and dehaired cashmere.

Most of the cashmere "countries of origin" have limited exports of semi-processed fibre.

Coarser Cashmeres may produce "cashgora" fibre, which is intermediate in micron range between true cashmere and mohair.

Scientific and technological research has been completed on Australian Cashmere goats and is available to help direct the industry’s development.

Markets and Marketing Issues
The cashmere industry has one industry-owned marketing structure, the Australian Cashmere Marketing Corporation (ACMC). During the 1990s, raw Australian cashmere was sold by the ACMC via a tender system based on objective measurements of the fibre. Most cashmere was exported in the raw state to Europe, the US and China for initial processing. The dehaired cashmere would then be spun and made into fabrics in other locations.

Since the installation of Australia’s first commercial dehairing machine earlier this year, the ACMC expects to offer dehaired Australian cashmere for international sale, thereby increasing competition.

Some cashmere producers sell their raw product directly to an Australian processor who manufactures knitwear for local consumption and export.

Production Requirements
As Cashmere goats generally have much shorter fleeces than mohair-producing goats, they are less likely to become entangled in scrub during weed control programs. This allows them to be used longer for that purpose. Clean pastures are required as clover burr can cause contamination and reduce the prices received for fibre. Good nutrition is required to maximise cashmere production.

As with any fibre production enterprise, the most important
requirement is for access to shearing facilities.

Breeds

Cashmere is produced by commercially farmed 'Australian Cashmeres' and by wild goats. It is possible to purchase wild Cashmere goats (to produce 50 to 80 g cashmere per year) and domesticate them, but it is now far easier to purchase domesticated and more productive 'bred-on' Cashmeres (120 to 200 g of cashmere per year). Established breeders now have fifth-generation selected Cashmeres for sale with production as high as 300 g of cashmere per year.

Cashmeres are rarely sold in regional livestock markets. Almost all purchases are privately arranged from established producers.

Currently many potential fibre-producing and breeding goats are slaughtered for meat.

Cashmere of correct specifications can be shorn from Boer crosses and some pure bred Boers, but it must be correctly classed.

Harvesting, Handling and Marketing Requirements

Cashmere goats are shorn once a year in mid-winter. Delays in shearing will result in the valuable cashmere down being shed by the goats and lost or cotted, with a resultant loss of income. Cashmeres can either be shorn using the traditional sheep method, or by the "go-down" technique with the goat restrained in a head-stall.

During shearing, contamination of white fibre with coloured fibre must be avoided. Shed hygiene standards should be followed.

Cashmere price bands

<table>
<thead>
<tr>
<th>Product</th>
<th>Valued price range</th>
</tr>
</thead>
<tbody>
<tr>
<td>finest white cashmere (&lt;16 µm)</td>
<td>$50 - $110/kg clean cashmere down</td>
</tr>
<tr>
<td>coarser white and lightly coloured cashmere (16-17.5 µm)</td>
<td>$20 - $80/kg clean down</td>
</tr>
<tr>
<td>brown and grey cashmere (16-17.5 µm)</td>
<td>$15 - $55/kg down</td>
</tr>
<tr>
<td>white and lightly coloured 'cashgora'</td>
<td>$5 - $10/kg hair-in</td>
</tr>
</tbody>
</table>

Source: The Australian Goat Report, 2000

Economics of Production

Stud goats may cost from $250 per head but commercial fibre goats can be purchased from about $35 per head.

Cashmere prices are related to mean fibre diameter and fibre colour. In simple terms, there are four price bands covering the main types:

Quality Cashmere does will provide 50 – 300g of down each year, indicating gross fibre returns in the range of $10 - $20 per doe per year.

General region for current cashmere production
Chapter 4. Dairy Goats and Goat Milk Products

Introduction

The dairy goat industry in Australia has traditionally supplied fresh milk to the health food sector. Farms have been small, typically milking 15-20 does, and have operated as cottage industries.

The increased popularity of specialty cheeses has created an unprecedented demand for goats milk. Access to a market that is easy to service means that farmers are no longer tied to land near city markets, and no longer have to self manage the whole enterprise, from production and packaging through to marketing and distribution.

The industry has more than doubled in size in the 1990s, due largely to the establishment of larger operations. Farmers generally still manage access to markets and deliver milk 2-3 times per week. As with any dairy operation, a time commitment is needed and land must be suitable for high productivity dairying.

Markets and Marketing Issues

Australian goat cheese production in 1998-99 was valued at A$3.6 million. Cheese is a specialty or gourmet product that is sold to food service and delicatessen outlets. Demand for cheese is increasing and imports have been growing, however, the local market may not be able to absorb much more product.

Export markets for cheese are currently being explored. Other products, especially milk powder, are known to have export potential. The ability to provide high quality product at competitive prices is anticipated to give Australian goat dairy products an advantage similar to that enjoyed by the mainstream dairy industry.

Most cheese is made in Victoria and Tasmania. Proximity to a successful dairy cow industry, especially with a manufacturing component, has proved important as it enables the sharing of resources.

Fresh whole milk remains a relatively small, health food-focussed market, but is being developed on a larger scale in some states. The emphasis varies, from state to state, from fresh milk to manufacturing milk.

Yoghurt production remains small.

Other products are currently being developed. It is expected that milk powder will be produced in 2000. This is a specialty market and includes health, manufacturing and export.

Prices paid at farm gate range from 65c – 100c/litre, sometimes with a delivery fee. Some payments are based on milk solids, and some have a seasonal incentive so that prices are higher in times of lower production (such as winter).

Production Requirements

The requirements for dairying, regardless of the species milked, are very similar. Farmers are successfully using many management techniques that have been developed for cows. Intensive pasture and grazing management systems are showing excellent results. More traditional methods based on wholly or partly housed stock and lot feeding are also practiced.

Intending dairy goat farmers should consider completing dairy farm qualifications. Knowledge of pasture and grazing management, nutritional requirements, herd improvement and disease control will lead to increased productivity.

To reduce seasonal variations in milk supply and fill seasonal feed shortages, it is likely that dairy goats will need supplementary feeding.

Dairy doe requirements

• 11MJ/day at 6-8% protein for maintenance.
• 5MJ/litre of milk at 15-18% protein for production (a doe producing 3 litres/day needs 26MJ/day).
• Specialised equipment for milking, milk storage and transport.
• Debudding and hoof trimming equipment and animal identification equipment (tattoo, tags, electronic ID).

Dairy goats are seasonal breeders and usually kid in spring. Variations to kidding times are needed in order to provide a more continuous milk supply. Kids are hand-raised in sheds.

Farm layout

• Based on cow dairy models.
• Careful siting of sheds, yards and laneways is needed for efficient farm and labour management.
• Holding yards at the milking area are usually covered and may also be used for a feed pad.

Other general requirements are discussed in the Chapter 5, Goat Production Requirements.
Breeds

There are three Swiss-based breeds, Saanen, Toggenburg and British Alpine, their crosses and crosses of these with Anglo-Nubians. It is necessary to plan all purchases, as it is unusual to be able to purchase a complete herd. It is often possible to order a drop of kids and raise these.

Harvesting, Handling and Marketing Requirements

Dairy goats are milked with machinery manufactured or adapted specifically for goats. Equipment differs from cows for teat size, operating vacuum and pulsation settings. Shed designs are based on cow systems, with platforms being more common than pits.

In order to meet food safety standards, shed practice and hygiene need to be of a very high standard. This is particularly true when milk delivery is less frequent than daily. Milk must be stored under 4°C. Goats are milked twice daily. Proximity to the manufacturer will facilitate regular collection/delivery and reduce transport costs. A HACCP system is recommended. State health or dairy authorities are responsible for licencing and quality assurance. Withholding periods must be strictly observed.

Typical lactation lasts for 300 days and average production may be from 1-3 litres/doe/day. A herd may produce 300-800 litres/head/year.

There are opportunities to on sell excess male kids for meat. However, prices paid may not justify the costs incurred in raising kids in the dairy situation. Further market expansion and development will help this situation.

The following data is taken from a development project in Victoria and Tasmania with two expanding farms

These farms are producing about 4370 litres/ha. It is possible to run enterprises on a lot fed basis, incurring feed costs of about $1/doe/day. The return depends on the scale of operation with at least 250 does being recommended. Many farmers have had to start with lower numbers and build up their herds and experience. Small quantities of milk may not be marketable, as supply to factories has increased and many are currently being fully supplied.

Economics of Production

There is little information available on large-scale production in Australia.

General region for current dairy production — expansion into other areas is feasible and expected
Goats have evolved to graze and browse in semi-arid rangelands. Mixed feeding behaviour allows them to consume a wide range of plants including grasses, herbs, scrub and weeds. Contrary to popular opinion, goats do not eat everything - they can be quite selective, usually choosing only the most digestible plant parts available. However, they are very flexible and will change their preferences with the season. Goats can be kept on conventional pastures quite satisfactorily but because of their ability to eat a wider variety of plants than sheep and cattle, they are productive in various environments.

Goats prefer areas with between 250 and 600 mm rainfall per annum (p.a). When they are grazed with sheep at the recommended stocking rate, there are complementary benefits, however, recommended stocking levels should always be observed as goats are not as efficient as sheep at grazing very short pastures. Generally, goats are not well adapted to the wetter temperate environments (> 800 mm p.a) and can be prone to internal parasites and foot complaints when run in these conditions.

Like sheep, goats are susceptible to soil trace-element deficiencies, particularly in higher rainfall regions. They may be susceptible to internal parasites where grazing pressures are constantly > 10 DSE/ha. (Dry Sheep Equivalents).

Goats require specific fencing similar to that needed for crossbred ewes. A well strained bottom wire approximately 70 mm above the ground is the single most important fencing requirement. A totally new prefabricated wire fence in open country costs from $1500 per km, whereas a 5-line electric fence will cost about half this amount. In some locations an old fence can be ‘goat-proofed’ by the addition of one single electric wire supported by outriggers. Electrified fencing is effective, relatively inexpensive and is strongly recommended where its use is practical.

Husbandry

With your first steps you should ‘hasten slowly’. It is strongly recommended that potential goat farmers talk to and visit a number of established goat farms before they buy any goats. Excellent technical information is available from industry associations and departments of agriculture. Read this information and the proceedings from field days and conferences. Plan your objectives clearly. It is better to start with a smaller number of goats and build up your herd as you improve your management skills.

Important Points to Note

- Appropriate goat fencing should be erected before goats are introduced. Fencing is best done by a ‘goat-wise’ fencer according to industry best practice.

- Goats should be grazed at no more than the recommended stocking rate for sheep in your chosen district. Discuss grazing requirements with the local Department of Agriculture officers. The cheapest feed for all types of goat is pasture. Knowledge of efficient pasture and grazing management will lead to increased productivity.

- Essential equipment includes a vaccinator, drenching equipment, elastrator or castrating equipment, and earmarking or eartagging pliers to facilitate identification. In some districts, hoof-paring shears may also be required.
*Goat Production Requirements*

A Boer buck surveys his domain

- Goats are usually mated in autumn when their fertility is at its highest. Some breeds (such as Boers) are readily joined all year round, while others (such as Angoras) are seasonal breeders that cannot be successfully mated outside autumn. In an intensive operation, one buck can mate about 60 does. Kidding occurs about 21 to 22 weeks (150 days) later. It is usual to mate goats for six weeks so that kidding will be spread out over the same period. It is important to be familiar with the grazing requirements of breeding goats before mating them.

- It is recommended that does be mated after they reach 25 kg liveweight, which usually means at about 19 months of age, although heavier 7-9 month does can often be successfully mated.

- Planning for kidding is essential. Predators must be controlled. Provision of suitable shelter is strongly recommended as cold, wet weather can be fatal for kids. Paddocks with trees and high grass are recommended if you kid your breeding mob in the paddock with minimal supervision (extensive system). Frequently, Stud breeders choose a closely managed system where does kid and/or ‘mother up’ in pens in a kidding shed (intensive system). Weaning percentages will usually be considerably higher, however, such a system may require several hours labour each day throughout the normal six week kidding period. The additional inputs of an intensive system may be warranted if valuable stud stock is involved.

- Kids are usually weaned at 12 to 14 weeks of age.

**Disease Control**

Clostridial diseases, especially tetanus and pulpy kidney, can cause large losses with goats. Vaccinating kids at four to six weeks of age and again four weeks later easily and cheaply controls such diseases. An annual booster vaccination is required for all goats.

Grazing goats are susceptible to internal parasite diseases. The adoption of appropriate grazing, monitoring and treatment techniques are important aspects of endoparasitic disease control. Each district has different environmental circumstances and consequently the actual species of parasite and the appropriate control practices vary. Kids are particularly susceptible and may need drenching with a suitable anthelmintic at as young as 10 weeks. Drenching guns make the administration of appropriate drugs relatively simple.

Regular sampling of the faeces of goats for parasite eggs (worm tests) is recommended. Kits to make this task easier are available from your local Department of Agriculture. Control programs usually involve treatment of pregnant does at 4 to 6 weeks before kidding.

External parasites such as lice can also infest goats. Control is relatively simple via either a plunge or spray dip, or backline treatment similar to that used with sheep. Care must be taken to follow the manufacturer's specifications when using chemicals especially regarding withholding periods prior to slaughter.

Flystrike is not a concern with goats, although minor problems with productive Angoras that have not been crutched have been reported.

Goats can be susceptible to various foot diseases such as footrot and foot abscess. Control of these diseases is a medium-term activity following detailed advice from the Department of Agriculture.

Potential purchasers of goats need to take steps to ensure that purchases are free of health problems, and certain Health Declarations regarding Ovine or Bovine Johne’s Disease, footrot, and caprine retrovirus (CAE, for dairy goats only) should be obtained from vendors prior to the introduction of new stock. Although the incidence of both OJD and BJD in goats is extremely low, the goat industry is a participant in the National Program for the Control and Evaluation of Johne’s Disease. It has developed a Goat Market Assurance Program.
(GoatMAP) to facilitate the purchase of goats from herds declared Johne's Disease tested. Prospective purchasers also need to be aware of the various zones across Australia where stock movements are restricted. Advice on the various zones is available from your regional veterinary officer at the Department of Agriculture.

To ensure that meat and dairy products comply with food safety standards, it is essential to adhere strictly to the withholding periods for all chemicals used in the control of diseases. Similarly, goat fibre producers need to be aware of the increasing number of regulations being considered for introduction in various overseas countries for chemicals commonly used to control external parasites. The withholding periods for meat or milk products intended for domestic consumption will be stated on the package in which the chemicals are sold. However, producers planning to export need to also be aware of Export Slaughter Intervals (ESIs).
**Key Contacts**

**Goat Industry Council of Australia (GICA)**

The industry’s peak national body and an affiliate member of the National Farmers’ Federation (NFF). GICA is made up of representatives elected by each state farmer organisation’s goat commodity section. Tel 02-6273-3855, Fax 02-6273-2331; PO Box E10 Kingston ACT 2604.

**Justine Hall**  
President  
Tel: 03 5157 8293  Fax: 03 5157 8235

**Ian Cathles**  
Vice President  
NSW Farmers Association  
Tel: 02 6227 9634  Fax: 02 6227 9634

**Richard Levinge**  
Hon. Treasurer  
SA Farmers’ Federation  
Tel: 08 8768 2116  Fax: 08 8768 2916

**Alan Smith**  
Tel: 08 9332 8783  Fax: 08 9332 8794

**Tom Harmsworth**  
Victorian Farmers’ Federation  
Tel: 03 5381 1321  Fax: 03 5381 1321

**Peter Firth**  
Agforce Goat Committee Chairman  
Springfield  
Tel: 07 4630 9122  Fax: 07 4630 9288

**Kevin Cole**  
WA Farmers’ Federation  
Tel: 08 9064 7364  Fax: 08 9064 7389

**Bob Adamson**  
Pastoralists’ and Graziers’ Association of WA  
Tel: 08 9285 4186  Fax: 08 9295 4784

**Joanne Robinson**  
National Farmers’ Federation  
Tel: 02 6273 3855  Fax: 02 6273 2331

**Breed Associations**

**Australian Cashmere Growers Association Ltd**  
PO Box 380  
Kellyville NSW 2155  
Tel: 02 9894 7877  
Fax: 02 9894 7055

**Boer Goat Breeders’ Association of Australia Ltd**  
c/- ABRI  
University of New England  
Armidale NSW 2351  
Tel: 02 6773 5177

**Dairy Goat Society of Australia Ltd**  
PO Box 189  
Kiama NSW 2533  
Tel: 02 4232 3333

**Mohair Australia Ltd**  
c/- ABRI  
University of New England  
Armidale NSW 2351  
Tel: 02 6773 3557  
http://www.mohair.org.au
Key Contacts

Farmer Groups

National Farmers Federation Tel: 02 6273 3855 www.nff.org.au
Farmer organisations have goat industry sections that can provide industry development contacts and further information:

**NSW Farmers’ Association**
Tel: 02 9251 1700
www.nswfarmers.org.au

**Victorian Farmers’ Federation**
Tel: 03 9207 5555
www.vff.org.au

**Western Australian Farmers’ Federation**
www.waff.org.au

**Pastoralists and Graziers’ Association of Western Australia**
Tel: 08 9479 4599
www.pgaofwa.org.au

**South Australian Farmers’ Federation**
Tel: 08 8232 5555
www.saff.com.au

**Tasmanian Farmers’ and Graziers’ Association**
Tel: 03 6331 6377
www.tfga.com.au

**AgForce Queensland**
Tel: 07 3236 3100
www.agforceqld.org.au

Industry Organisations

**AUS-MEAT:**
The national organisation and accreditation authority responsible for quality standards and the accurate description of meat and livestock.
Tel: 07 3247 7200
PO Box 3175, Sth Brisbane, QLD 4101
www.ausmeat.com.au

**Australian Livestock Transporters Association (ALTA):**
This body represents livestock transporters and operates the quality assurance system, Truckcare.
Tel: 02 6247 5434
GPO Box 2078, Canberra, ACT
2601resolution@interact.net.au

**Australian Meat Processor Corporation (AMPC):**
A national body representing all processors active in the red meat processing industry. Specifically, AMPC aims to promote, protect and further the rights and mutual interests of its members.
Tel: 02 9223 6900
PO Box H131, Australia Square, Sydney NSW 1215
www.ampc.com.au

**LiveCorp:**
The Australian Livestock Export Corporation Ltd (LiveCorp) is a company owned, controlled and funded by livestock exporters. Its role is to support the sustainable and profitable development of the trade in live cattle, sheep and goats.
Tel: 02 9223 7655
GPO 3466, Sydney 1043
livecorp@livecorp.com.au
www.livecorp.com.au

**Livestock Export Accreditation Program (LEAP):**
Is an industry-based assurance scheme initiated by ALEC and operated by LiveCorp.

**Meat and Livestock Australia (MLA):**
A producer-owned company adding value to the red meat and livestock industries of Australia by promotion and R&D.
165 Walker Street, North Sydney, NSW 2060
Tel: 02 9463 9333 1 800 023 100
www.mla.com.au
Industry Organisations (continued)

**National Meat Association of Australia (NMAA):**
Is the meat industry’s largest employer organisation. Its members include retailers, wholesalers, domestic and export processors and smallgoods manufacturers.
Tel: 02 9906 7767
PO Box 1208, Crows Nest, NSW 1585
www.nmaa.org.au

**Rural Industries Research and Development Corporation (RIRDC):**
This corporation was set up by the Commonwealth Government to work closely with Australian rural industries on the organisation and funding of their R&D needs.

**Government Organisations**

**Agriculture, Fisheries & Forestry Australia (AFFA):**
AFFA have jurisdiction and influence right throughout the agriculture production chain. They also license livestock exporters and ensure that these exporters carry out their business according to the rules.
Tel: 02 6272 3933
PO Box 858, Canberra, ACT 2601
livestock.contact@affa.gov.au
www.affa.gov.au

**Animal Welfare Inspectoral Offices:**
**NSW:** Officer in Charge, NSW Agriculture, Animal Welfare Inspectoral Office,
Locked Bag A5000, Sydney South, NSW 1232
Tel: 02 9264 9533.

**Victoria:** Department of Natural Resources and Environment, Animal Health and Operations Branch,
Cnr Mindland Highway and Taylor St, Epsom, VIC
Tel: 03 5430 4517

**South Australia:**
284 Portrush Rd, Kensington, SA 5068
Tel: 08 8204 8892

**Tasmania:** Department of Primary Industries, Water and Environment, Public Health and Animal Welfare section,
GPO 44A, Hobart, TAS 7001

**ACT:** Environment ACT, PO Box 144, Linham, ACT 2602
Tel: 02 6207 2249

**Australian Quarantine and Inspection Service (AQIS):**
Regulates imports and exports, including the issuing of permits and the inspection of animals. Also involved in the policy aspect of livestock exports — veterinary protocols and other aspects of animal health and welfare.
Tel: 1800 020 504
GPO Box 858 Canberra, ACT 2601
animallive@aqis.gov.au
www.aqis.gov.au

**TruckCare:**
A quality management program designed for livestock transporters and coordinated by ALTA; Heather Burdon,
Tel: 08 8733 2541
GPO Box 2078, Canberra, ACT 2601
Other Contacts

agSearch:
Farmwide’s agricultural search engine;

Australian Federation of Islamic Councils Inc (AFIC):
Body representing the many Australian Islamic councils and related organisations.
Tel: 02 9698 8891
PO Box 331, Waterloo, NSW 2017

Australian Goat Milk Association,
RMB 5004A Wodonga, VIC 3690
Tel: / Fax: 02 6020 6076

Herd Improvement & Producers’ Association:
For dairy producers
Tel: / Fax: 03 9718 2041
e-mail: gaille_abud@primus.com.au

LAMBPLAN:
Australia’s sheep and goat genetic evaluation system.
LAMBPLAN, Department of Animal Science,
University of New England, Armidale, NSW 2351.
Dr Alex Ball,
Tel: 02 6773 2493;
Dr Rob Banks,
Tel: 02 6773 2948;
ancc.une.edu.au/lambplan/index

RSPCA:
Royal Society for the Prevention of Cruelty to Animals is a non-profit organisation that polices, inspects and educates with respect to preventing cruelty to animals.
Tel: 02 6282 8300,
PO Box E369, Kingston, ACT 2604
rspca@rspca.org.au
www.rspca.org.au

Rural Connect:
A distribution service and system for agriculture and rural focused publications and information
Tel: 1800 1100 44

Withholding Periods (WHPs):
Details about withholding periods for chemicals used on animals during production.

Infoscan:
www.infoscan.com.au
is a useful link which gives access to ABOA and ARRIP databases.
Publications

**Industry Journals**
Each breed society produces its own publication for members. Additionally, the following publications provide independent coverage of the entire goat industry:

- **The Australian Goat Report**
  Published fortnightly
  Tel: 02 6343 3225

- **The Goat Farmer**
  Bi-monthly magazine
  Tel: 03 5146 4223

**References**


- Davies, L. and Murray, G. 1997 The Economics of a Commercial Angora Goat Enterprise, Rural Industries Research and Development Corporation, Canberra.

- Davies, L. and Murray, G. 1997 The Economics of a Commercial Cashmere Goat Enterprise, Rural Industries Research and Development Corporation, Canberra.


