DAIRY GOATS: NEW BREEDING OPPORTUNITIES

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INTRODUCTION

Goat milk is consumed in most countries and world production in 1984 was 7.5 million tonnes from 432.3 million goats (Anon 1984). Demand also exists for goat milk in Australia, however, support is required in all aspects of goat milk marketing and production if a viable goat milk sector is to develop (Greenwood 1988).

In this paper I outline and discuss opportunities within the dairy goat industry and briefly mention programmes aimed at establishing an organized and self-sufficient industry which is capable of creating markets and meeting the requirements of these markets reliably.

MARKET OPPORTUNITIES

Goat milk

Market size for goat milk in N.S.W. was estimated at 1.23 million litres for the year ended November 1984 (Greenwood 1988).

The major market for goat milk in Australia has been for whole milk sold to health food consumers, allergy sufferers and religious groups (Byers 1985). The role of milking goats in Australia, however, extends back to the first settlers (Murphy 1963) and to settlers in remote areas prior to extensive development of refrigerated transport links (Mitchell 1981).

Demand for processed goat milk products including yoghurt (Alexopoulos 1985; Russell 1985) and cheese (Alexopoulos 1985; Greenwood 1986) has been identified. Lack of knowledge of potential markets for goat milk is recognized as a factor which is limiting market size, while the development of a manufacturing sector for goat milk and initiation of research into product development and marketing are important issues necessary for industry expansion to occur (Greenwood 1988).

Dairy goat by-products

(i) Goatmeat Goatmeat is consumed in most countries. World production in 1984 was 2.0 million tonnes (Anon 1984). The majority of goatmeat produced in Australia is derived from feral goats and is exported. In 1987, 5,702 tonnes of goatmeat were sold by Australian exporters to overseas markets (Anon 1988). Greenwood (1985a) reviewed marketing aspects of the Australian goatmeat industry.

Goatmeat markets which have been identified within local and overseas communities are potential sources of income for dairy goat breeders. Strong demand for goatmeat has become evident and more buyers of goats for meat are entering the market.

(ii) Goat skins and leather Local demand for goat skins and leather currently exceeds Australian supply (J. Alexander, personal communication). There is a need to improve skin quality and for correct training of slaughtermen in the removal of goat skins if further development of this market is to occur (Greenwood 1985a).

Live goat exports

The total number of goats exported from Australian in 1987 was 54,535 head, valued at $A7.2 million. A total of 205 dairy goats were sold for $A69,462 for breeding purposes (Australian Meat and Livestock Corporation - unpublished data).

Enquiries for Australian dairy goats from overseas far exceed current availability (T.D. Mitchell, personal communication; L. Timmins, personal communication). It is recognized that supply is limited by the small number of dairy goats in Australia, non-availability of acceptable production records, and veterinary requirements of countries that are potential purchasers, which preclude imports of goats infected with *caprine arthritis-encephalitis virus* (C.A.E.V.). This virus is present in many Australian herds and Grewell et al. (1986) found that approximately 30% of 2,708 goats and 82% of 115 herds tested in N.S.W. had C.A.E.V. antibody.

PRODUCTION FACTORS IN INDUSTRY DEVELOPMENT

Production factors which limit market size for goat milk in N.S.W. include poor microbiological quality of goat milk (McMahon 1986, 1987), seasonal supply variation (Figure 1) and small milk volume (Greenwood 1988) due to the number (Figure 2), size (Figure 3) and efficiency - 311 litres per lactation for the year ended November 1984 - of producers.

Figure 1 Seasonal variation in production identified by surveying the N.S.W. goat milk industry. Statistics relate to the year ended November 1984

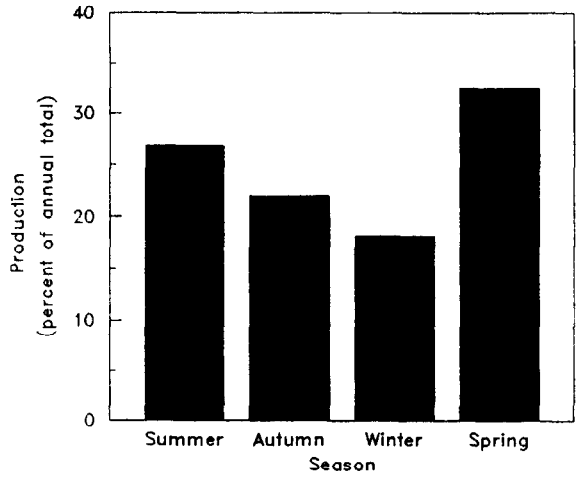


Figure 2 Commercial producer numbers according to location identified by surveying the N.S.W. goat milk industry. Statistics relate to the year ended November 1984

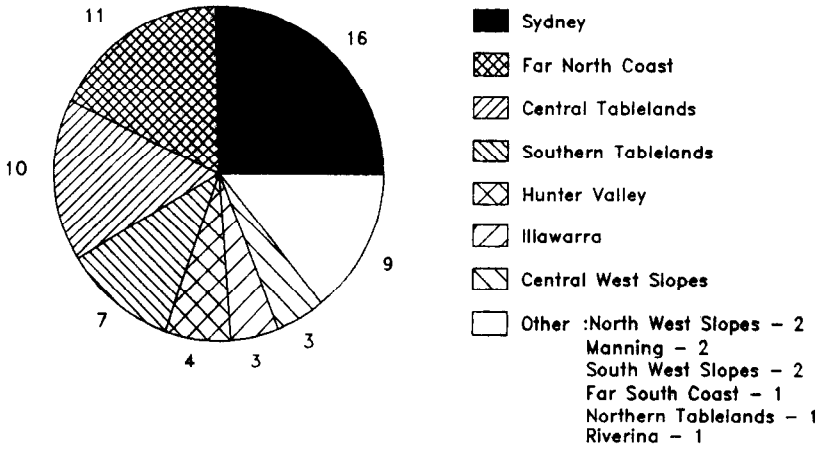
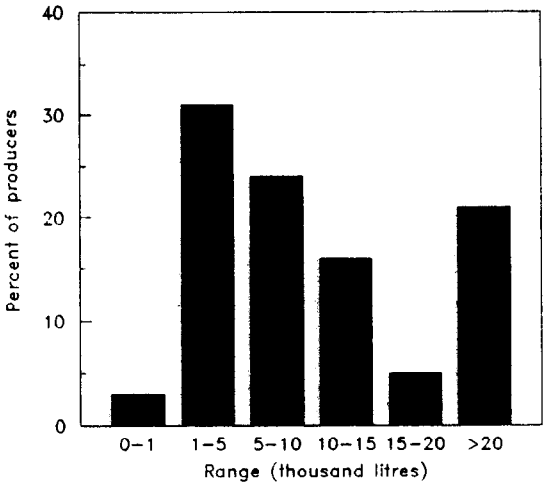


Figure 3 Annual production level frequency for commercial producers identified by surveying the N.S.W. goat milk industry. Statistics relate to the year ended November 1984



Other broad issues which directly affect production of goat milk, identified as important for industry expansion include:

(i) establishment of codes of practice for dairy buildings and hygiene.
(ii) acceptance of quality standards and adherance to these standards.
(iii) drawing up of guidelines on matters such as 'dairy design and function', 'quality milk production', 'disease control' and 'husbandry of the dairy goat'.
(iv) provision of an advisory service on all matters pertaining to goat milk production.
(v) initiation of research into goat husbandry and disease.

DAIRY GOAT BREEDING

Genetics of the dairy goat

Comprehensive reviews of the genetics of the dairy goat have been presented by Iloeje and Van Vleck (1978) and Ricordeau (1981). The latter reviewer also outlined selection objectives for dairy goat breeders, progeny testing of bucks, estimation of dairy goat breeding values and organization of selection.

Goat milk recording

(i) Herd recording in Australia Herd improvement programmes are utilized by few commercial goat milk producers in Australia. The following statistics relevant to the use of herd recording were obtained from herd improvement organizations.

Table 1 Number of herds and goats, average herd size and average milk and component yield per goat, for participants in herd improvement programmes

State	Year	Number of		Average yield of			Average percent		Average length of lactation
		herds	goats	milk (L)	fat (kg)	protein (kg)	fat	protein	
N.S.W.	1984/85	25	209	768	30	na*	3.8	na	na
Queensland	1986/87	18	223	694	25	20	3.6	2.9	264
Tasmania	1986/87	3	232	603	23	19	2.6	3.2	221
Victoria	1986/87	44	243	709	na	28	na	3.9	na
Western Australia	1986/87	10	98	1052	40	na	3.8	na	261

*na = not available

In addition it is recognized that the standard of record keeping within the industry is poor (Greenwood 1985b).

Herd recording of goats in Australia presently requires the use of dairy cow programmes which are costly and provide minimal information to producers of goat milk.

(ii) Simplified goat milk recording methods Gall (1981) reviewed the use of goat milk recording methods and highlighted the need for simplification of such procedures to reduce costs to producers and increase participation in schemes. He also listed the following minimum requirements recommended by the International Committee for Recording Productivity of Milk Animals (ICRPMA), for official milk recording of goats:

(a) at least four recordings during the first five months of lactation.
(b) records of milk quantity only; tests for constituents optional.
(c) recordings to be made by the owner, provided there is one official check during the first five months of lactation.

Simplified recording also requires the use of projection factors which were described by Ricordeau (1981).

Controlled breeding of the dairy goat

The technology exists to include controlled breeding methods in dairy goat management programmes (Corteel, Gonzales and Nunes 1982). Roles identified for controlled breeding techniques include:

(a) 'out of season' breeding to reduce the seasonal variation in the supply of goat milk.
(b) early detection of pregnancy in does to enable 'out of season' breeding programmes to be better managed.
(c) artificial insemination to allow sire surveys to be undertaken on properties in different environments and with varying disease status, and to improve herd productivity.
(d) superovulation and embryo transfer to increase the number of superior does within the industry and to break disease cycles - in particular C.A.E.V. and Johnes disease.
(e) synchronization of oestrus to enable batch kiddings for artificial rearing programmes.

CONCLUSIONS

New breeding opportunities exist within the goat milk industry in Australia. The successful development of the goat milk industry will however require support in the forms outlined above. This need extends to personnel skilled in reproductive and breeding technology.

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