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The History and Performance of Dorper Sheep in Western Australia

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Introduction

Australian wool prices have suffered a major decline since 1988/89. This has resulted in a decline in the total Australian sheep population from a high of 173 million in 1990 to 115 million forecast in 2000/01.

In Western Australia sheep numbers peaked in 1990 at 38 million. The population in June 2000, according to the Australian Bureau of Statistics, was 25 million. By far the majority of WA sheep are Merinos, kept primarily for wool production, but there is growing interest in sheep meat production.

As wool producers have shifted emphasis towards meat production, the ewe percentage in the WA flock has grown to 49% and more ewes have been mated to non-Merino rams (21% in 1998/99). This, in conjunction with the improvement in lamb marking results to between 75 and 80 % in the last three years, has enabled lamb export levels from WA to be maintained despite declining sheep numbers. Export markets are favourable and exports of live sheep and lambs are a major contributor to sheep meat exports.

Along with a growing interest in the production of sheep meat, many farmers have become interested in "new" sheep breeds; that is, breeds new to Australia. In the last seven years or so many new breeds have been introduced to Australia. Some have arrived as live sheep, but most have come in a flask, as embryos. The new breeds include Texels, American Suffolks, Finn sheep, Damaras, East Friesians, Karakuls, South African Meat Merinos, Dohne Merinos, Africaners and Dorpers.

Dorper sheep attracted the attention of some Western Australian farmers because of their reputation as hardy, fecund sheep suited to a hot, arid climate. They produce carcasses of conformation and quality suitable for the domestic market and also for export, as meat or as live sheep. An additional attractant, especially if wool production is not seen as a profitable enterprise, is the low maintenance requirements of Dorpers, in that they do not require mulesing, crutching, shearing or treatment for flystrike.

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History

The first Dorpers came to Australia, as embryos, in April 1996. They were imported from South Africa to Perth, Western Australia. There were 2,360 black-headed Dorper embryos among the total importation of more than 10,000 embryos of various breeds. The original Dorper embryos, owned by SAABCO P/L, came from ten South African stud farms. The embryos were imported by Wescorp Livestock International Ltd., part of the Wescorp Group of companies whose head office is in Fremantle, Western Australia. White Dorper embryos were first imported in 1997, from the Free State to the property of David Mathews, Corrigin, WA.

The Dorper Sheep Breeders' Society of Australia Inc. was formed in 1997 in Perth, WA, through the efforts of Wescorp Livestock International Ltd. Tim Coakley was the inaugural president. In 1997 there were 400 Dorper ewes registered and 14 animals were exhibited at the Perth Royal Show.

In 1999 the Society's headquarters⁴ were relocated to Adelaide, South Australia. The national president of the Society is now Bronte Gardner, a Western Australian. The Society has Branches representing the Western, Southern and Eastern regions of Australia and a Northern Branch is proposed. The Chairman of the Western Region is Dennis Veitch, of Narrogin.

There are currently approximately 23 registered Dorper flocks in WA, and 60 Australia-wide. In WA, Dorper sheep and their crosses are now present throughout the agricultural and pastoral areas.

About 10 field days featuring Dorpers have been held in various parts of WA. Attendance at these days has been good, especially given the sparse populations in the pastoral areas where some field days have been held.

The breed has received additional publicity in both of Western Australia's major rural newspapers, The Countryman and The Farm Weekly. Agriculture Western Australia, through the Sheep Meat Group of its Meat Program, has also publicised the breed in various publications. These include the quarterly Ovine Observer newsletter, a leaflet entitled South African Meat Sheep Breeds and a brochure, The Dorper Sheep in Western Australia.

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Performance

Most of the WA data on Dorper performance, summarised below, is not derived from research projects but from monitoring of sheep on privately owned stud and commercial farms, in agricultural and pastoral areas of the state.

At Barnong Station, Yalgoo, in 1998, Dorper rams achieved 70% lambing from Merino ewes. The Dorper-Merino lambs averaged 20 kg at 8 weeks and 33.3 kg at 14 weeks old. Their average daily weight gain, to 14 weeks old, was 300 g/h/d. Carcass weights, when killed at 17 weeks, averaged 18.5 kg, with fat scores from 1 to 3. Second cross Dorper lambs (F2 or three quarter Dorper) weighed 40 to 44 kg at about 6.5 months of age.

On the same Yalgoo station, purebred Dorper lambs, born to surrogate Merino mothers and raised over summer, weighed between 35 and 41 kg at 103 days and 48 to 50 kg at 159 days. Purebred lambs born naturally to 14 months old ewes and raised over summer weighed 37 to 39 kg at 102 days.

At Callagiddy Station, Carnarvon, beginning in April 1997, five pure Dorper ewe lambs grew at rates ranging from 80 g/h/d up to 200 g/h/d over 10 months. No supplementary feed was given. The ewes were mated to a Dorper ram and produced six lambs, successfully rearing four.

At Corrigin, White Dorper-Merino ewe lambs, born in April 1999, and weaned onto winter pasture in mid-July, grew at an average of 171 g/h/d over 91 days (13 Aug – 12 Nov). At slaughter on the 24 of November, they averaged 43.3 kg live-weight and 20.2 kg carcass weight, giving an average dressing percentage of 46.6%. GR tissue depth averaged 8.3 mm (range 6.0 to 12.0 mm).

In a feedlot at Williams, 25 Dorper-Merino lambs gained an average of 353 g/h/d over 42 days, finishing at an average live weight of 43.9 kg and carcass weight of 20.6 kg. The average dressing percentage of these lambs was 47.1%.

In a feedlot in Perth in 1999, male Dorper-Merino lambs averaged weight gains of 370 g/d with an average gain of 18 kg (from 26 to 44 kg). Carcass weights averaged 20.74 kg.

At Merredin, 12 second and third cross Dorper lambs, up to four months old, and grazing native perennial grass pasture with their mothers, grew at an average of 288, 205 and 177 g/h/d in the months of March, April and May 2000, respectively. The flock was supplemented with an average of 37 g lupins/head/day. Native grass pastures are rare in the wheat-belt. Most sheep graze stubbles or senesced annual pastures in autumn and commonly receive a grain supplement.

In 1999 Woolworths, a major national supermarket chain, purchased the carcasses of 90 Dorper-Merino lambs from a farm at Yuna, near Geraldton. The carcasses weighed between 16 and 18 kg and all were fat score 2 or 3.

Table 1 shows the weight gains of purebred Dorper lambs at Narrogin. They originated from embryo transplants into Merino ewes. Gestation periods ranged from 146 to 154 days, and averaged 148.6 days. Birth weights were not recorded, and all growth rates are based on 4.5 kg birth weight. The lambs were reared with their mothers, on pasture, without supplements.

Table 1. Growth rates of purebred Dorper lambs on Merino surrogate mothers, on pasture, without supplements.

	Weight at 9.5 weeks (kg)	Daily gain g/d
White ewe lambs	23.5	292
White ram lambs	27.6	365
Black head ewe lambs	29.0	382
Black head ram lambs	30.7	407

Comments from butchers and competition judges on Dorper cross carcasses have been favourable. Fat cover is even and minimal trimming has been required. Most carcasses have fallen into the desired fat score range of 2 to 3 (equal to a fat depth at the GR site of over 5 mm and up to 15mm). This has surprised some buyers who expected carcasses to be over-fat, based on the appearance of live Dorper cross lambs.

Bronte Gardner's Dorper-Merino ram lambs won the light and heavy weight carcass categories and the champion carcass overall at the Perth Royal Show competition in 1999. In 2000, again at the Perth Royal Show, Bronte's White Dorper cross entries won first and second places in the lightweight class (16 to 20 kg).

Tables 2 and 3 show LAMBPLAN test results for four Dorper rams from two WA stud farms. LAMBPLAN is Australia's national performance testing scheme for sheep. These rams averaged 64 kg at 11 months old and were well muscled for their weight, averaging 34 mm eye muscle depth at the 12/13th rib. From LAMBPLAN data, the eye muscle depth at these weights in other breeds is usually 25 – 27 mm.

Table 2. LAMBPLAN Results, Bulbarli Dorpers, Kojonup

Tag No.	Kirra donor	Kirra sire	South African stud	Date of birth	Wean weight 4/2/97	Weight 22/3/97	Weight 20/7/97	Weight 13/9/97	Fat mm	Eye muscle mm
P?-92	135	910	B.J. Cronje	7/10/96	23.5			57	2	36

Table 3. LAMBPLAN Results, Bunyip Park Dorpers, Gidgegannup

Tag No.	Kirra donor	Kirra sire	South African stud	Date of birth	Wean weight 4/2/97	Weight 22/3/97	Weight 20/7/97	Weight 13/9/97	Fat mm	Eye muscle mm
O-68	798	966	E. Connan	4/10/96	37	45.0	56.5	68.0	4	33
P-71	863	909	M.W. Phillips	3/10/96	31.5	40.0	52.5	67.0	4	34
Pink-93	139	910	B.J. Cronje	5/10/96	39.5	49.0	63.5	63.0	4	31

It has been suggested that Dorpers are non-selective grazers, and that they may graze and browse differently from other breeds. In 1999 and 2000 Dionne Walsh of Agriculture Western Australia, Meekatharra, established trials on Oudabunna station, near Meekatharra, to compare rates of forage consumption and dietary preferences of Dorper, Damara and Merino sheep and Boer goats. Five purebred animals of each breed, born in the area, have been placed on separate plots of mulga shrub-land. Preliminary results have shown differences in daily rates of forage consumption and dietary selectivity. The daily forage intakes recorded (in kg/head/day) were: Dorper 0.6, Merino and Boer goat 1.1, Damara 1.3. If these results are confirmed, the recommended stocking rates and grazing management practices for pastoral areas may need to be adjusted to take breed into account.

Economics

To date, only one detailed assessment has been made of the economics of farming Dorpers in WA. Karen White, Regional Economist with Agriculture Western Australia at Carnarvon, has made a detailed desktop study comparing the likely profitability of Damaras, Dorpers, Boer cross goats, feral goats and Merino sheep in the Southern Rangelands. The stocking rate used in her study was one sheep to twelve hectares.

In Karen's study (Table 4), the Dorper enterprise ranked third, after Damaras and Boer goats and ahead of feral goats and Merinos (lowest) in predicted gross margin/Dry Sheep Equivalent (DSE). For profitability/DSE, the ranking order was the same and the Merino enterprise was actually predicted to make a loss.

Table 4. Desk-top Study of Gross Margins and Profitability of Sheep and Goat Enterprises in the WA Southern Rangelands (K. White, 2000, pers.com.)

Enterprise	Gross Margin (\$/DSE)	Profitability (\$/DSE)
Damara sheep	29.21	17.56
Dorper sheep	15.27	3.63
Boer goats	15.81	3.95
Feral goats	12.10	0.24
Merino sheep	6.13	Minus 6.37

Issues

1. Fibre transfer

The wool industry is Western Australia's second largest export industry, earning over \$450M in the 1999/2000 financial year. Despite ongoing concerns about prices, particularly for medium fibre diameter wools, producers remain committed to the production of a high quality product, free of contamination of any kind, including coloured fibres.

The importation of Awassi embryos and the release of the sheep from quarantine in WA in 1993 caused considerable concern among Australian wool producers and processors. Many felt that the presence of this breed in Australia would pose a serious risk to the international reputation of our Merino wool. The more recent arrival of Damaras, Dorpers and other hair-growing or coloured sheep has resulted in a renewal of this concern.

Although producers have focussed particularly on the risks of coloured fibre contamination, processors are equally concerned about contamination with white medullated, or hair fibres.

Trials on fibre transfer between Damaras and Merinos have been conducted in South Australia and further trials involving Dorpers, Damaras and Merinos are being undertaken in Queensland.

In March 2000, delegates at the Interstate New Sheep Breeds Meeting in Perth called for a national approach to the development of a quality assurance system to manage the risk of fibre transfer. Subsequently, at a meeting of the WA Wool Strategy Group in June 2000, woolgrowers, brokers and buyers endorsed a voluntary vendor declaration scheme for pure Merino clips. In this declaration growers are asked to endorse a statement that "to the best of their knowledge their wool consignment had not been in contact with exotic sheep breeds." This voluntary declaration is intended to fill a gap until the new national Code of Practice for Woolclip Preparation is introduced in January 2001.

In Agriculture Western Australia's brochure, *The Dorper Sheep in Western Australia*, the following procedures are recommended for farmers who run both Dorpers and Merino sheep (until further research develops alternative procedures):

- Wean surrogate or F1 lambs at least two weeks before shearing Merino ewes.
- Remove rams from Merino ewes at least four weeks before shearing Merino ewes.
- Move Merino ewes that have reared Dorper lambs through the shearing shed after other Merinos.
- Move F1s that need to be shorn through the shearing shed last.

2. Diseases

Rectal prolapses have occurred in a small number of pure and part-bred Dorpers. Surgical treatment has sometimes been successful, but affected sheep have usually been slaughtered. This condition is very rare in Western Australian Merino sheep, both at pasture and in feedlots.

Fatal *Pasteurella haemolytica* pneumonia has been diagnosed in a small number of pure and part-bred Dorpers. This disease is not uncommon in WA sheep, particularly among British breeds.

Dorpers are reputed to be relatively resistant to internal and external parasites but there is no WA evidence to support or refute this claim. Because of the high prevalence of anthelmintic-resistant worms in WA, there is certainly an awareness of the advantages that would be gained from having sheep that are naturally worm resistant.

Prevention of chemical residues in agricultural produce is a very important issue for Australian farmers, particularly in relation to our export markets. Many producers would be glad to reduce or cease anthelmintic and insecticide treatments, because of cost and the risk of unacceptable chemical residues. Farmers who would like to produce organic meat, for which there is a growing market, would also be pleased to have sheep naturally resistant to parasites.

The biting louse (*Bovicola ovis*) is probably the external parasite of most interest to WA Dorper breeders. Biting lice on Australian sheep may have adapted to a dense wool fleece and may not find a Dorper fleece hospitable, but it seems unlikely that Dorpers will be totally resistant to lice infestation. Even if Dorpers support only light lice infestations, these lice could transfer to wool producing sheep, on which lice can be a significant problem. Under some circumstances it may be necessary to treat Dorpers for lice to protect other, wool-producing sheep, even if the lice cause no problems for Dorpers. This raises the question of what is an effective and legal lice treatment for sheep, such as Dorpers, that grow hair or a hair-wool mixture that is shed, and not shorn?

When shedding their fleeces, Dorpers and their crosses appear to like rubbing on fences, trees, or any other solid object. Most Australian farmers would suspect sheep that rub of being lice infested, or perhaps affected by itch mite or grass seeds. Dorper owners may at times be under pressure to prove, both to themselves and their neighbours, that their sheep do not have lice.

Ticks rarely occur on WA sheep, and flies, which can be a serious problem causing flystrike in Merinos, should not trouble Dorpers.

Fourie and Horak, (2000) stated that most Dorpers in South Africa are infested with the larvae of the nasal bot fly (*Oestrus ovis*). This fly is common in WA, so it is expected that it will also attack Western Australian Dorpers.

The sheep scab mite (*Psoroptes ovis*) is not present in Australia, but itch mite (*Psorergates ovis*) infestation is quite common, particularly in Merino flocks. It will be interesting to see whether itch mites establish and cause any problem in Dorpers, given that Dorper skin is said to be quite different from that of a Merino.

3. Behaviour

Dorpers seem to be more intelligent than Merinos. This may mean that Dorpers and their crosses will be more liable than Merinos to escape from paddocks, particularly on farms with poor to average sheep fences. Farmers accustomed to British sheep breeds and their crosses would be prepared for this, but many WA farmers have run only Merino sheep.

The future

Dorpers are expected to have a growing role in sheep meat production in WA. The main factor limiting growth in their numbers is the strongly expressed concern about their potential to cause fibre contamination of Merino wool. Dorpers are likely to be found in a variety of situations in Western Australia:

- Pastoral or rangeland flocks.

Pastoralists solely dependent on income from medium to strong wool Merinos have been struggling financially for some time. Many are considering changing to potentially more viable enterprises, such as cattle, tourism, goats, camels or different breeds of sheep. The Dorper is appealing because of its reputation as an easy care, hardy, fertile sheep, suitable for the low input, extensive grazing enterprises in the pastoral areas. In seasons when pastoralists are unable to finish Dorpers for slaughter, they should find a ready market as store sheep in the agricultural areas of the state.

- Commercial flocks in the Agricultural region.

Over the last 7 or 8 years many wheatbelt farmers have reduced their flocks or disposed of their sheep entirely. This has been because of continuing poor prices for wool and increasing areas being put into crop. Even in the higher rainfall woolbelt, farmers have been turning from sheep to cropping. Many farmers, however, still prefer to retain sheep on their farms to assist in weed control, particularly as herbicide resistant weeds and chemical costs are both increasing. Others like to have sheep to spread risk and to retain diversity on their farms. A flock of Dorpers could satisfy these functions, while eliminating the costs and labour associated with running a wool-producing flock. Some farmers are interested in breeding up to a commercial, unregistered Dorper flock, by using Dorper rams over Merino ewes and possibly ewes of other breeds.

- Stud or registered flocks

As with other sheep breeds, some farmers will concentrate on breeding purebred, registered Dorpers. As stud breeders, they will sell breeding animals, mostly rams, to commercial flock owners and to other stud breeders.

- Terminal sires of prime lambs

In the agricultural areas of the state, some farmers who are currently producing cross-bred prime lambs out of Merino ewes may be convinced to change to Dorper rams as terminal sires, instead of the more commonly used breeds, such as Poll Dorset, Suffolk or Texel. White Dorsers may be preferred for this purpose, although there will still be potential for fibre contamination of the Merino wool clip.

- Small-farm flocks

Small farmers, or hobby farmers, will be interested in Dorsers as attractive, easy care animals for grass control and as a source of home-grown meat.

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