



## Research Article

# The failure to provide an effective veterinary service to sheep in Australia

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## Introduction

Sheep have been the pre-eminent livestock species in Australia and wool production has been the country's greatest contribution to the world's economy, so why is it that there isn't an effective veterinary service to sheep in place there?

Sheep are not native to Australia and were originally imported; 44 sheep were among the animals transported from Great Britain to the penal colony established on the east coast of *Terra Australis* in January 1788 <http://firstfleetfellowshp.org.au>.

The following brief account of the history of wool in Australia is taken from "The Australian Merino" which began;

*The Australian Merino...comprised one of the greatest creative expressions of domestic animal species by and for mankind...one of the greatest contributions to the world economy [1].*

These original sheep were for human provisions and consisted of fat-tailed native sheep from the Cape of Good Hope, but the primary source of sheep for the first three or four decades of Australia's history were from Bengal, the closest British colony to Australia.

The Macarthur family were the first wool sheep breeders in the new colony of New South Wales (NSW) and in 1807 Australian wool first appeared in the English customs returns and in 1811, Samuel Marsden dispatched the first significant shipment of between 4,000 and 5,000 pounds of Australian wool to England.

Wool production followed the development of the colony, beginning in NSW and Van Diemen's Land (Tasmania) and extended as new grasslands were discovered.

Legal settlement was followed by illicit occupation into the Port Phillip region (Victoria) with sheep coming from both NSW and Tasmania and from there they travelled west into South Australia (SA) and north into the New England district of NSW on into Queensland (Qld).

The "Squatting era" occurred between the 1830s and 1840s and a "Squatter" was an illegal occupier of crown land beyond the prescribed limits of settlement. By the late 1840s, the authorities recognized the economic good derived from this activity and issued licences for their sheep runs and tenure.

The 1850s saw an influx of immigrants, including miners drawn to Australia by the discovery of gold, and thereafter, the colonies passed "Selection Acts" which provided for the sale of land at auction, forcing squatters to bid against others for the land they had previously controlled by leasehold.

From this time onward, sheep spread throughout the whole continent, including the harsh areas that became known as pastoral regions. Sheep studs were located in the more favorable regions, but commercial flocks were found everywhere and by Federation in 1901, most areas had been settled.

During the latter part of the 19<sup>th</sup> century, Australia rose to become the premier supplier of wool to the world and during the 20<sup>th</sup> century that position was consolidated. However, the wool industry collapsed during the latter part of the 20<sup>th</sup> century;

*In 2006, Fifteen years after the collapse of the Australian Wool Corporation's Reserve Price Scheme, Australia's Merino studs were selling one-third the number of rams of 1990, over half Australia's professional woolgrowers had ceased growing wool as their main enterprise; the wool fibre's global market share has continued a steady decline since 1991 [2].*

### Veterinary literature review

The veterinary art has been known since antiquity, but the modern era is considered to have begun in the 18<sup>th</sup> century with the establishment of university education for veterinarians [3].

Since that time veterinary schools were established everywhere, including Australia, for in 1888, William Tyson Kendall established the Melbourne Veterinary College in conjunction with his private practice in Melbourne [4].

In 1909, this college was absorbed into the veterinary school established at the University of Melbourne. The University of Sydney established a school in 1910; the University of Queensland in 1936 and in 1974, Murdoch established one in Perth [5-7].

During the first half of the 20<sup>th</sup> century, government veterinarians dominated the profession, whereas practitioners, especially those in rural practice, struggled to survive [8,9]. At the time of World War II, there was even talk about nationalization of the profession [10,11].

In 1951, an article on research of sheep disease during the first half of the 20<sup>th</sup> century was published which demonstrated that most of the significant sheep diseases had been researched about 40 government, academic and industry veterinarians [12].

In 1958, articles appeared on rural veterinary services highlighting the different roles of the state service and private practice [13,14] and at the Annual General Meeting (AGM) of the Australian Veterinary Association (AVA) that year, three practitioners spoke on the subject of organising and developing a practice in sheep districts [15].

From Young in NSW, the first speaker said; *I would say that it is impossible to make a living as a practitioner in a sheep district where, few, if any, studs exist and where there are no other sources of income...in any such practice small animals are the bread and butter of the practitioner.*

This speaker thought the future was "precarious" and blamed the government free-service and suggested nationalization of the veterinary profession [15].

The second speaker spoke of his experience during three-years developing a practice in the New England region of NSW and he began with;

*In a practice specializing in sheep work, the majority of cases concern animals other than sheep.*

As a result, he changed the method for charging sheep work from the traditional fee-for-service to an annual contract. When he did this, the sheep work increased from 12% to 24%.

Encouraged, he proposed that three factors were necessary for the conduct of a veterinary practice with sheep: firstly, the industry must be “stable” and “prosperous”; secondly the wool-grower “must be well educated, intelligent and progressive”; and, thirdly, the veterinarian must be able “to render useful service” [16].

From Skipton, in Victoria, the third speaker began;

*Practice in a sheep district obviously involves certain difficulties not met with in most dairying districts, and establishment of a practice in any one district, based principally upon the sheep of that district, is unlikely.*

And concluded;

*The first rule in practice in a sheep district should be to place little reliance on sheep work...A practice in a sheep district cannot be established without a large amount of cattle work or a good small animal practice or the sale of sheep medicines [17].*

In 1959, after listening to what rural practitioners had to say about the difficulties of providing a service to livestock producers, an academic veterinarian stated;

*This is a serious situation that cannot wait indefinitely to be remedied. Have we been fiddling while our farm market of veterinary service has been burning down? [18].*

Sixty years ago, Gordon reported that Australia’s veterinary profession was not providing a service to the farming community and warned that the opportunity to do so may have already been lost.

The next practitioner to venture into sheep practice did so in 1964, described his experience with what he termed the “Whole Farm Approach”. After a research career, he spent a short time developing a consulting service in the New England region of NSW, before accepting an academic post. He emphasized the need to examine both animal and farm productivity [19].

In 1971, when Australia had 100 thousand wool-growers and 180 million sheep, the veterinarian employed by the farmer’s co-operative, Gazcos, provided his thoughts on the future of the sheep industry and implications for the veterinary profession [20] stating;

*Most of the veterinary work associated with the sheep industry had been carried out by Government veterinarians either in health services or research...practitioners have possibly contributed least of all.*

And concluded;

*I doubt if we can afford to have duplication which now exists in the rural areas between Government veterinarians and practitioners...This is controversial but it is a problem we have to face [20].*

In 1978, a practitioner spoke at the AGM of the AVA on his experience with a Preventive Medicine/ Animal Production Sheep Consultancy Service in the south-west of Western Australia [21]. In this, and later publications [22,23], he outlined the research conducted, results achieved and the subsequent failure of the service and demonstrated that the problem providing an effective veterinary service to wool-growers and sheep-breeders was not due to the service provided, but because the latter did not want to pay for such a service.

Since then, apart from a tribute to Professor Blood [24] and a Post Graduate Foundation Proceedings [25,26], little has been documented regarding the servicing of sheep by practitioners in Australia.

In 2002, the Australian Government examined the status of the veterinary profession

and its services in an enquiry titled “Review of Rural Veterinary Services” [27]. The Review provided a somber assessment of veterinary services to economic livestock; its assessment of services was accurate, but its recommendations proved ineffective.

In 2007, it was reported that no more than 12% of Australia’s veterinary effort was devoted to farm animals; in other words, only one in eight of Australia’s veterinarians attended livestock [28].

### Current research

In 2015, the author began a post-doctoral thesis to examine the impact of the Frawley Review on Australia’s veterinarians. Three areas raised in the review, namely, rural veterinary services, animal quarantine and education, were the subject of the research (Maxwell 2018).

### Method

A national on-line survey of Australia’s veterinary services was undertaken, whilst, one-on-one, oral history interviews were conducted with quarantine personnel and Deans and Heads, both past and present, of Australia’s veterinary schools.

A 40-question, on-line survey was designed and each of Australia’s veterinary boards was contacted to seek co-operation in the study. Seven of the eight boards agreed to participate and the survey was posted in February 2016 and closed in June of that year.

### Results of the Survey

The number of registered veterinarians in Australia at 30 June 2016 for the seven participating veterinary boards was 9,076 and 555 responses were received to the survey (personal communication, Australasian Veterinary Boards Council).

The mean age of all respondents was 45 years. The mean age for female respondents was 40 years, which was significantly younger than for males which was 53 years (Table 1).

Sixty-four percent of respondents were female, 74% were born in Australia and 62% grew up in an urban environment (Table 2).

**Table 1:** Respondent Demographics.

Criteria	Number	Percentages (95% CI)
Gender:		
Female	356	64.1 (60.0, 68.1)
Male	199	35.9 (31.8, 40.0)
Total	555	
Place of birth:		
Australia	405	73.5 (69.6, 77.1)
Overseas	146	26.5 (22.9, 30.3)
Total	551	
Background:		
Rural	209	37.9 (33.9, 42.1)
Urban	342	62.1 (57.9, 66.1)
Total	551	

**Table 2:** Employment at graduation and at time of survey.

Employment	At Graduation			At Survey		
	n	% (95% CI)		n	% (95% CI)	
Practice	463	87.5 (84.4, 90.2)		364	68.4 (64.3, 72.4)	
Government	32	6.0 (4.2, 8.4)		52	9.8 (7.4, 12.6)	
Teaching/ research	23	4.3 (2.8, 6.4)		48	9.0 (6.7, 11.8)	
Other	11	2.1 (1.0, 3.7)		68	12.8 (10.1, 15.9)	
Total	529			532		



Eighty-eight percent of respondents stated that they entered practice at graduation, but at the time of the survey 68% were employed there; 6% entered government service, but at the time of the survey 10% were employed there; 4% entered research and teaching, but now 9% were employed there; 2% were initially classified as “Other or Sundry”, whilst now 13% were employed there. Nine percent of respondents reported that they worked “on-farm” (Table 3).

Fifty-five percent of respondents initially worked in the country, whilst at the time of the survey 28% were employed there. Significantly more males commenced work in rural practice than did females, however, at the time of the survey there was no significant difference between the sexes. Eighty-one per cent of males and 84% of females who worked in rural practice at the time of the survey, began their career there (Table 4).

Fifty-eight per cent of respondents worked full-time during their careers and the proportion of males was similar to that of females. Seventy-eight per cent of respondents worked continuously at their veterinary career; 86% of males worked continuously, which was significantly higher than that of females at 73% (Table 5).

Six percent of respondents were dissatisfied with their education, 16% with their work as a veterinarian, 41% with their income, and 18% with their social status (Table 6).

Fifty-four percent suffered a work-related Injury or Illness during their career and of those, 17% reported that it impaired their capacity to perform their duty and 15% reported that as a result they were leaving veterinary service (Table 7).

**Table 3:** Rural and Urban employment at graduation and at time of survey.

Where service provided	At graduation			At Survey		
	n	%	(95% CI)	n	%	(95% CI)
Rural	289	54.5	(50.2, 58.8)	147	28.3	(24.5, 32.4)
Urban	241	45.5	(41.2, 49.8)	372	71.7	(67.6, 75.5)
Total	530			519		

**Table 4:** Comparison of full-time vs part-time and continuous vs Discontinuous.

Options	Number	Percentage (95% CI)
Full-time employment	319	58.2 (54.9, 62.4)
Part-time employment	229	41.8 (37.6, 46.0)
Total	549	
Continuous employment	428	78.0 (74.3, 81.4)
Discontinuous employment	121	22.0 (18.6, 25.7)
Total	549	

**Table 5:** Satisfaction with various aspects of veterinary science.

Satisfaction	Education		Position		Income		Status	
	n	%	n	%	n	%	n	%
Completely	112	21.0	97	18.4	50	9.4	95	17.8
Mostly	269	50.4	235	43.9	102	19.1	182	34.0
Generally	119	22.2	116	21.7	162	30.4	157	29.3
Not satisfied	34	6.4	87	16.3	219	41.1	101	18.9
Total	534		535		533		535	

**Table 6:** Occupational hazards and their consequences.

Options	Numbers	Percentages (95% CI)
<b>Occupational illness/injuries:</b>		
Yes	289	
No	243	54.3 (50.0, 58.6)
Total	532	45.7 (41.4, 50.0)
<b>Results:</b>		
Impaired capacity	84	16.6 (12.5, 21.4)
Cause retirement	43	14.9 (11.0, 19.5)
No incapacity	198	
Total	289	68.5 (62.8, 73.8)

**Table 7:** Changes since the Frawley Review.

Options	Numbers	Percentages (95% CI)
<b>Increase livestock caseload:</b>		
Yes	60	13.2 (10.3, 16.7)
No	393	86.8 (83.3, 89.7)
Total	453	
<b>Increase livestock income:</b>		
Yes	56	12.3 (9.5, 15.7)
No	398	87.7 (84.3, 90.5)
Total	454	
<b>Supply problem:</b>	88	19.5 (15.9, 23.4)
<b>Demand problem:</b>	364	80.5 (76.6, 84.1)
Total	452	
<b>Want cheap service:</b>		
Yes	363	79.8 (75.8, 83.4)
No	92	20.2 (16.6, 24.2)
Total	455	
<b>Treat female vets different:</b>		
Yes	310	64.6 (60.1, 68.7)
No	43	9.0 (6.6, 11.9)
No opinion	127	26.5 (22.6, 30.6)
Total	480	

Since the release of the Frawley Review in 2003 [27], 87% and 88% respectively reported that there had been no increase in caseload or income derived from livestock and 80% of respondents reported that the problem with rural veterinary service was that farmers did not utilize the service, whilst the balance considered the problem to be the service offered.

That is, it was a demand problem not a supply problem. Eighty percent of respondents reported that farmers shop around for the cheapest veterinary service and 65% reported that farmers treated female veterinarians differently than their male colleagues.

## Discussion

In this survey, 6% of registered veterinarians responded, so bias is possible and the results may not accurately reflect the views of the whole Australian veterinary population. Further, as the mean age of respondents was 45 years, it is likely that the responding cohort was generally older and represented presumably more experienced graduates than non-respondents.

The mean age of female respondents (40 years) was significantly younger than for males (53 years). This was not surprising given the change in the gender distribution of veterinary students and graduates that have occurred over the past 20 to 30 years [22,27,28].

In this survey, two-thirds of respondents had an urban background and it is likely this is partly responsible for their preference to work in urban environs in practices predominantly servicing companion animals. The limited attraction of rural service and the change in location from rural to urban environments by veterinarians as they age has been highlighted in the work of Heath (1998).

At the time of graduation, significantly more male survey respondents entered rural service than females, but at the time of the survey there was no significant difference in the proportion of males and females who had remained in rurally based practices. In contrast, and not surprisingly, very few respondents who began their career in urban service, ventured into rural service later in their careers.

At graduation the majority of respondents (88%) entered private practice with the balance distributed between government service, academia, industry and this is consistent with the findings of others [22,28].

At the time of the survey, 68% of the respondents were in private practice and those who have changed had primarily moved into the “other” categories. This work may be less stressful than private practice and perhaps more interesting, as practice can become routine.

At the time of the survey, slightly more than half (58%) of the respondents worked full-time and approximately three-quarters of these had worked continuously as a veterinarian since graduating. This contrasts with earlier eras where most graduates worked as veterinarians all of their working life [14,22,29].

In this sample, less than 10% of respondents performed veterinary work on-farm, which is in marked contrast to much of the 20<sup>th</sup> century, when many government veterinary officers and private practitioners functioned on-farm [14,29].

Dissatisfaction with various aspects of veterinary life was canvassed in the survey and 6% were dissatisfied with undergraduate education, 16% with work as a veterinarian, 41% with the income they received, and 21% with the status achieved as veterinarians. In an earlier study, dissatisfaction with various aspects of their life as students and then as veterinarians, were recorded for WA veterinarians [22]. These results need sober reflection, as they indicate a relatively high level of dissatisfaction with life, income and status as a veterinarian in Australia.

More than half of the survey respondents suffered an injury or illness during their career as veterinarians, with 17% of these stating it affected their capacity to function and 15% stating that it would lead to their leaving the occupation of a veterinarian. In a previous study of WA veterinarians, 50% incurred a major physical injury or disease during their career and of these 59% stated that it had impaired their performance as a veterinarian and 20% considered leaving practice as a result [22].

The Frawley Review was commissioned for a number of reasons, one being because Australia’s animal health system was being directed towards companion animals instead of production animals and another being that both government veterinary services and rural practices were unlikely to be sustained [27]. Frawley concluded that this would only be reversed if the earning opportunities for rural practice were improved and a better balance in teaching of all animal species could be achieved. There needed to be a significant increase in demand for private practice services by livestock producers and, to stimulate demand, Frawley made recommendations which they considered could be helpful. However, unless there was a significant increase in the demand for rural veterinary services, the situation would not improve.

As relatively few livestock producers utilized veterinary practitioners on a regular basis, from the 1970s most rural practices turned to servicing companion animals to remain viable [27,28]. This survey supports those observations.

The survey respondents reported that since the Frawley Review there had been no increase in either case-load or income from economic livestock. This does not apply to those few rural practices in Australia that provide specialty services for livestock.

The results of the survey, together with those from the oral history interviews were analyzed in the thesis and alternatives were discussed. This research led to the questioning of the currently models being used in veterinary science; the models may have outlived their usefulness and for there to be a future for veterinarians in Australia, new models may need to be created.

## Conclusion

Why is it that during the 130-year (1888 to 2018) history of educating veterinarians in Australia, they have failed to provide a service which wool-growers valued? Is it because veterinarians did not provide the right service or because wool-growers do not want to pay for veterinary services? Is it a supply problem or a demand problem?

My analysis is that both are to blame – veterinarians do not provide a service wool-grower's value and wool-growers don't want to pay for a service which they consider they are entitled to!

The collapse of Australia's wool industry has been described;

*In the mid twentieth century the Australian wool-growing industry was the greatest wool economy the world had ever seen. It was the backbone of the nation's economy for 120 years, being the nations largest export earner and wealth-builder for all but a decade of that period...Then, in a little over two decades at the end of the twentieth century, the wool industry self-destructed [30].*

This collapse has been accompanied by further contraction of veterinary services to sheep and other livestock producers.

Frawley was a watershed moment for Australia's veterinary profession, but, unfortunately, that opportunity was not acted upon by this country's veterinary profession. Perhaps we are too late, for today veterinarians are little interested in providing a service to economic livestock and Australia has turned its back on agriculture in its search of a new identity.

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