

PPI



Disposal of NCV skins M.611

1995

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MEAT & LIVESTOCK
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TABLE OF CONTENTS : DISPOSAL OF NCV SKINS - M611

Executive Summary :	1
Overview of NCV skins and their origin	11
Costs of Skin Preparation :	19
Merino Sheep Pelt Quality :	19
The Dumping of Sheep Skins in Australia :	20
1. Educating Wool Growers.	22
2. Establishing the environmental problems arising from the current practices.	29
Report on Abattoir Visits :	29
1. Blayney Abattoirs	31
2. G.M.Scott Pty Ltd	33
3. Wodonga Meats Pty Ltd	34
4. Barnawatha Abattoirs	35
5. Gastricum Bros	35
6. Echuca Abattoir and Ashton Pty Ltd	36
7. Tatiara Meat Company Pty Ltd	37
8. Metro Meat Ltd	37
9. Lobethal Abattoir Pty Ltd	38
10. South Australian Meat Corporation	38
11. Shark Lake Meat Works	39
12. Metro Meat International	39
13. V & V Walsh	40
14. Metro Meat International	40
15. Codgegong County Council	40
16. Fletcher International Export Pty Ltd	41
17. Monash University (School of Biochemistry)	42
18. B&E Air-conditioning.	42
19. Cockburn City Council	43
20. Department of Environmental Protection	43
21. Australian Meat Exports	43
22. Blue Ribbon Meat Products Pty Ltd	44
Environmental Sustainability of Burial of NCV Sheep Skins:	45
3. Establish alternatives open to the processor which give rise to increased value of the skin rather than dumping same.	46
Higher Technology Uses :	47
Lower Technology Uses :	48
Meat Meal Production :	50
Storage of NCV skins during recessionary times:	50
Policy Settings :	51
Summary :	53
Appendix : Farmer Survey	

MEAT RESEARCH CORPORATION**M611 : Disposal of NCV skins****Executive Summary :**

The number of sheep slaughtered each year can alter markedly. The major reasons why more sheep are killed from time to time include droughts and significant falls in wool prices. The Study noted that over the 30 years ending in 1993, the numbers of head slaughtered per annum has moved up and down by around 50% of the mean. Since 1988 sheep slaughtering's have moved up and down by over 40 per cent, ranging from 12.3 million in 1988/89 to a high of 18.8 million in 1991/92. In 1993/94 sheep slaughter numbers were 17.6 million.

Skin prices over this period has moved markedly as the supply has outstripped demand. For the period since 1990, a full wool merino skin, free of vegetable matter, taken from a carcass weighing between 16.1 kg and 20 kg, prices have been \$5.00 per skin (1990), \$3.15 (1991), \$6.25 (1992), \$4.50 (1993), \$7.25 (1994) and \$10.10 (1995). Bare shorn pelts, in the same category were not quoted as they had no commercial value (NCV) between 1990 to 1993, were making 50 cents in 1994 and \$2.00 per skin in 1995.

Similarly annual average greasy wool prices have changed from \$6.47 per kilogram in 1988/89 to a low of \$3.14 per kilogram in 1992/93 and \$3.11 in 1994/95.

It is in within this context, that NCV skins arise. Firstly, the demand side for skins cannot adjust to the quite marked differences in supply that occur from year to year without heavily discounting prices. This moves the threshold for NCV skins higher thus more skins are dumped. Coupled with the changing supply side is the farm management practise of merino wool producers to sell their cast for age ewes directly from the shearing board. Based on the 1994 sheep population, this Study estimated that some 5 million ewes were sold bare shorn, along with a little under 1 million cast for age wethers. In summary, the sheep skin industry has an underlying base of bare shorn pelts that may or may not have a value from year to year, to which must be added skins with greater lengths of wool on the skin, when prices for skins are heavily discounted. At the height of the wool recession in 1991/92, skins with a wool length of up to 2 inches were being dumped. The cost of preparation, preservation,

freight and other selling costs were greater than likely proceeds that could be derived from the sale of the skin.

Another issue that impacts on the number of NCV skins that are likely to be dumped from year to year is the structure of the Australian sheep skin industry itself. Firstly, the merino sheep skin is seen as a by-product of the mutton industry, which itself is seen as a by-product of the wool industry. Wool producers and many meat processors see the merino sheep skin as a low quality, almost worthless by-product, which is simply sold to whom ever is interested. The interested parties are invariably sheep skin merchants or traders who sell the skins on a forward sold basis, the overwhelming number of skins being exported as salted green skins. Whilst there is a relatively sophisticated wool-on tanning industry in Australia, it does not get involved to any great extent in merino cast for age sheep skins. The fellmongering industry is growing once again in Australia, but its whole rationale is based on sufficient length of wool being present on the sheep skin to make processing economically viable.

There is no leather industry for Australian merino sheep skins to speak of, its description is best described as a cottage industry.

In addition, there is no universal or standard industry description for either sheep skins or pickled pelts. This differs quite markedly from the New Zealand industry which recognised the problem many years ago and developed a universal language for marketing purposes. It is the recommendation of the Consultants that this relatively simple matter be addressed as soon as possible as it is one of the few remaining primary industry products that is not covered by a universal or standard pan Australian language of description.

The Study was approached on three different paths namely

1. Education of woolgrowers in reducing the number of bare shorn pelts coming forward on an annual basis.
2. Establishing the environmental problems arising from the various practices employed by selected Australian abattoirs.
3. Establish alternatives open to the processor which give rise to increased value of the sheep skin rather than dumping same.

1. Educating Wool Growers :

The Farmer Survey undertaken in conjunction with this Study indicated that 79 per cent of respondent woolgrowers breed their own ewes. Some 71 per cent of those sold their ewes as cast for age, with another 14 per cent selling ewes at four to five years of age. Respondents were asked as to when their ewes were sold and some 28 per cent stated that they sold directly from the shearing board with another 21 per cent selling sometimes directly from the board. If one assumes half of the latter sell directly after each shearing, nearly 40 per cent of respondents indicated that they sold bare shorn sheep directly from the board into the mutton trade. By extrapolation, this equated to some 5 million ewes and 1 million wethers at a total sheep population of 134 million.

It was clear from the Survey that it would be difficult to impose a voluntary Code of Practise as the vagaries of weather and markets would impact on that Code. The Consultants view was that a recommendation from the MRC, publicised quite widely and, with the support of the various Farmers Associations, would probably see a large reduction in the numbers of bare shorn sheep skins coming forward. To this end a pro-forma pamphlet is included in the Report.

Another critical issue is farmers perceptions about the skin values on sheep ready for sale. The responses to the questions in the Farmer Survey with respect to skin values fluctuated quite widely, indicating a rather poor knowledge of the sheep skin market. This fact has possibly been known for many years but if the farmer and the purchaser are to negotiate on equal terms, where both parties derive satisfaction from the sale process, they both must have access to relevant information. Skin values are part and parcel of the transaction. *The Consultants recommend that the education process has to begin with the processor rather than the farmer. We found many examples of the meat processor seeing sheep skins as a by-product industry not worthy of investment. The reason why this recommendation is made is that if the processors in total could be encouraged to further their interest in the sheep skin industry, such as Fletchers, Dubbo and Gastricums, Dandenong, then that more healthier competition will in part flow back to the producer.* There's an old apt adage that states "50% of something is better than 100% of nothing".

2. Environmental Problems.

In essence, the Industry has found answers to the disposal problems of NCV skins in various ways, one of which included burying the unwanted green skin directly into pits, both internally on the property and externally through contracts with local Councils, waste disposal companies and/or others such as local farmers. *These green skins do not in themselves, contain hazardous chemicals or additives. They are not treated in any way, merely buried and there are no factors with regard to farm management practices that might impart some additive to the skin that was harmful to the environment. The only qualification at this point is that the sometimes practised task of adding lime to the skins on burial should cease. It literally does not add anything to the degradation, in point of fact, retards same as it slows the biological action.*

The practice of dumping of skins has significantly eased since 1994 as there are markets for all sheep skins, with few skins actually being of no commercial value. The exception will be abattoir shorn, torn or damaged skins. Skin pieces arising from the slaughter process are being put through the rendering process in all abattoirs visited.

Nevertheless, there are many pits throughout Australia where sheep skins have been buried. In several cases, in order to keep the smell and the flies away whilst the pit is open during the dumping process, a layer of lime was spread over the top of the skins. At the end of the day, up to a metre of soil was then bulldozed over the top of the pit. The liming practice has the reverse effect of what is required once the skins are buried. This action reduces biological degradation to very low levels and as a result, skins dry out underground and remain there for many years.

From an environmental point of view, it is the Consultant's considered view that the dumping of large numbers of sheep skins is not desirable but current practices do not suggest that there is any environmental catastrophe waiting to happen. If anything, the skins once buried in large deep clay or clay lined pits will lie inert in the ground for many years, slowly degrading over time, upwards of 20 years, but providing the skins are buried in a green state without chemical additives, there should not be a problem of degradation of the land and its immediate environment. If buried *en masse* in poorer

soils there could be a problem of the fouling of local underground water supplies. However, they would have to be local and have access to a pathway through the soil to the deeper underground water supply in order to contaminate same.

The practice of spreading the skins thinly near the surface of the soil, and covering with manure and top soil, then seeding has worked well in Esperance. WA. This is not an experimental trial, its actually up and operating and is commended as a distinct method of disposal of NCV skins by burial.

3. Adding Value :

Adding value to the merino sheep skin can be achieved through a number of routes. The alternatives have been discussed through several research papers including the development of a process to render the pelts in to gelatine and soluble collagen. Whilst technically possible, it is the Consultant's view that it does not make economic sense. If such plants were developed in Australia, it is suggested that they would begin by using good pelts with ample coverage of wool so as to maximise profit and recover the cost of the fellmongering. Whichever way the skin is processed it has to have the wool removed. *Acetate fellmongering and gelatine production are almost mutually exclusive processes. The concept of beginning such processing using NCV skins, which invariably will be bare shorn merino cast for age ewes and subject to large production swings, lacks credibility.*

The issue really is trying to find a use for such skins. If the numbers reduce through an education program amongst farmers, then the remaining skins can perhaps be best treated as fertiliser. This can happen in several ways such as burying relatively thin layers of NCV skins in shallow pits, along with other suitable refuse such as paunch material to aid the degradation of the total material. Given the assumption however, that more fellmongering will take place in Australia and, more skins with a commercial value of wool will come forward, the technology developed by the MRC in freezer plate technology, will come into its own. It is the view of the Consultants and of some processors in the meat processing industry, that the freezer plate is too slow for a medium sized abattoirs. However, its possible to put in cascade freezers which will do

the same job automatically and with speeds that more than keep up with the production line. The use of this technology could also be used to completely freeze NCV skins for crushing in more "user friendly" portions of low quality green skin which could then be used as a basis for reasonable quality fertiliser. This process would however require more research and development but its relatively simple "off the shelf" equipment and with a process that is considered to be fairly simple and inexpensive.

Recommendations and Conclusions :

Conclusions :

Issue 1. A particular problem of this research was the lack of statistical information available which one could analyse. Anecdotal evidence has to be relied upon to draw conclusions about the various outcomes. The lack of statistics also has a tendency to mask the extent of the relative health of the industry. More data would allow decision makers the opportunity to investigate alternatives; for example, someone contemplating fellmongering could see at a glance the availability of appropriate skins and when, where and why questions could be more easily addressed.

Issue 2. There is no universal language that accurately describes the Australian sheep and lamb skin. There are common views which enable the industry to understand the basics but in terms of specific objective measurements, there is little in common. Other allied industries are moving, or have moved to, objective measurement but not the skin industry. Thus pickled pelts are sometimes being sold in runs, rather than in various grades. In addition, it leads to boundary bafflement, where say lengths of wool are downgraded or upgraded through subjective assessment, which must, in the long run, reduce the overall efficiency of the industry. The wool industry has seen dramatic change with the introduction of objective measurement and whilst many of the benefits achieved cannot be guaranteed to arise in the skin industry, there is little doubt that there are significant advantages to be had. Those advantages should convert to money and the health of the industry should be enhanced. At the very least, research should be conducted to establish the cost benefit outcomes of the introduction of objective

measurement. The development of a viable leather industry in Australia is, in our opinion, predicated on the development of an objective language at skin stage.

Issue 3. The overwhelming majority of sheep in Australia are merinos. The skins are by nature, ribby and sometimes shear scarred. Older skins are marketed as by products of the mutton industry, which in turn, is seen as a by product of the wool industry. Within that fact, many farmers, (approximately one-third), sell their merino ewes directly from the shearing board as bare shorn, cast for age ewes. In normal market conditions, these skins are destined for the dumps as NCV skins. Current market conditions are such that bare shorn pelts have value in the overseas leather markets, but these come and go.

There is an overwhelming need to develop an education program with farmers which attempts to change the farm management practice of selling bare shorn sheep. Irrespective of the other farm management problems that arise, farmers have to recognise that such skins are a potential problem and cost to the meat processing trade if bare. Moreover, it does not maximise the value of the total products derived from the sheep over its lifetime. It could be argued that it is an economic waste of a valuable resource, a practice of which costs the industry money, rather than at least, allowing it to break even.

Issue 4 : In addition to an education amongst farmers, there is also a need to research and develop the education programs to the meat processors. Its an old adage in woolgrowing that the profitability of the wool production is governed by what you receive for the old sheep once they have reached the end of their economic life. The value received is a function of both the markets for mutton and for sheepskins. In our research amongst processors we continually ran across the view that the sheepskin is a by product of the mutton industry and as such is considered only in the context of what will be the tender price received for it, the day after slaughter. There are interesting exceptions, namely Gastricums of Dandenong and Fletchers of Dubbo where the only by product was the bleat of the sheep. Systems, such as fellmongering, are obviously available to maximise the revenue streams from the total animal. Other industries such as the pig and chicken industries have long since tackled the problem of maximising the

internal revenue streams however many within the meat processing industry are seemingly only interested in leaving the process to the skin traders. The simple fact is that the longer the pipeline, the more margins have to be recovered and the less efficient is the industry. In the case of the skin industry in Australia, the overwhelming percentages of skins are sent salted to overseas processors. This neither maximises the value of such products to Australia nor to the processor.

By educating the processor and say, developing assistance packages that brings some of the value adding in-house, the total industry will gain greater strength, leading to more competition at farm gate level. This in turn will maximise the opportunities for farmers, given that they are selling two products, mutton and skin, as one, when they sell their cast for age sheep. Greater competition at farm gate level will see both sectors richer for the change.

Issue 5. As skins are normally buried directly from the abattoirs in a green state, there is no chemical addition, prior to or after, that would cause any long term environmental concerns. The problem is that the practice has been to bury the skins in deep pits, up to four metres in depth, drop three metre of skins into same and cover with a metre of soil. The conditions are sometimes exacerbated by the introduction of lime over the top of the skins prior to adding the top soil. The trouble with this approach is that skins take many years to degrade, sometimes up to twenty years as they are buried in too greater concentrations, leading to the skins drying out rather than degrading biologically. The closer they are buried to the surface and the less the depth of skin, the greater the opportunity for the biological actions to work.

Issue 6. Most skins, whether destined for local or overseas fellmongering or tanning are salted to preserve the skin prior to further processing. The addition of salt preserves the skin but must be removed prior to further processing. Prior research has developed a plate freezing mechanism that provides short term preserving but has been found to be too slow in many works. Any system has to keep up with the slaughter chain thus the idea of putting the green skins onto an endless belt and passing them through a cascading air freezing process should be an enhancement of the original idea. A side

benefit is that such "an off the shelf" system is that the whole skin could be frozen to the point where possibly NCV skins could then be crushed for fertiliser.

Issue 7. There are developments of NCV skins being used as a type of fertiliser and these practices should be encouraged.

Recommendations :

1. Provide a greater statistical base on which to make judgements on the relative health of the skin industry by asking sheep & lamb meat processors to voluntarily supply the following -

(i) Number slaughtered per week.

** Number of lambs*

** Number of sheep*

(ii) Method of disposal of skins

** Domestic tender/auction*

** Direct export*

** Stored pending sale*

** Fellmongered at works*

** Dumped as NCV*

2. Urgently develop a universal objective description for sheep/lamb skins including grades for pickled pelts, similar to the New Zealand grading system.

3. Educate woolgrowers, particularly Merino ewe breeders, to sell cast for age and other sheep with a minimum length of wool on the skin of not less than 8 weeks growth. A suitable brochure should be developed for distribution. In addition, actively promote such farm management practices to woolgrowers through brokers, farmer associations and stock and station agents.

- 4. Research, develop and educate sheep and lamb processors in the alternatives including the benefits of value-adding by fellmongering, wool-on tanning and marketing semi-processed leather.*

- 5. If skins are to be dumped in burial pits, ensure the skins are placed in shallow, clay or clay lined pits, without the addition of lime, to a maximum depth of skins not exceeding one metre and covered by a relatively thin layer of top soil, again not exceeding half of a metre in depth.*

- 6. Continue to research and develop an automated plate freezing mechanism for the meat processing plants where the skin face is chilled for fellmongering. Included in this research is the concept of being able to totally freeze the bare shorn pelt for crushing in a frozen state for use as fertiliser.*

- 7. Continue research into other forms of dumping NCV skins through mixing with other material such as paunch material and burial as conducted in the research program at Murray Bridge, South Australia.*

Overview of NCV skins and their origin :

NCV skins can be defined as having no economic value of either wool or pickled pelt material that would make the skin worth processing. Most NCV skins arise through older sheep being sold into the mutton trade directly after shearing. Robert's¹ indicated in his report that it had been estimated that 6 million skins were dumped in 1992 and in 1993. Merino ewes represent the greatest number of the bare shorn older sheep as they are frequently sold directly from the shearing board upon reaching their perceived end of economic life. Our research² has indicated that some 5 million ewes are sold as bare shorn sheep, based on a sheep population of 134 million, and just under 1 million wethers were sold bare shorn. These sheep go into the abattoirs for slaughter and, depending upon the market for pelts, the skins may or may not become NCV skins.

Like all commodity markets, the factors that influence prices for sheep skins are based in both supply and demand circumstances. Supply is a function of the amount of sheep coming forward for slaughter which fluctuates quite markedly from year to year depending upon several issues including, the relative price for wool, mutton prices, seasonal factors especially drought and the competition arising from increasing prices in other farm produce. Demand is also dependent on several critical factors including prices for differing classes of leather, wool and competitive products such as say, synthetic chamois. The major factor in demand is the relative health and wealth of various consuming economies around the world. During the period under review i.e. the early 1990's, they were in recession.

The two factors on the supply side which drive more bare shorn, or short woolled pelts into the NCV arena are droughts, causing a greater number of sheep to come forward, usually in bare shorn state, or low wool prices that cause a sudden reduction in the overall sheep population. These can be obviously mutually exclusive in the sense that droughts cause stock numbers to fall irrespective of prices. There is also some evidence that good seasons can delay the slaughter of sheep irrespective of wool prices. Table 1 gives an indication of the relative changes by State between 1988 and 1993.

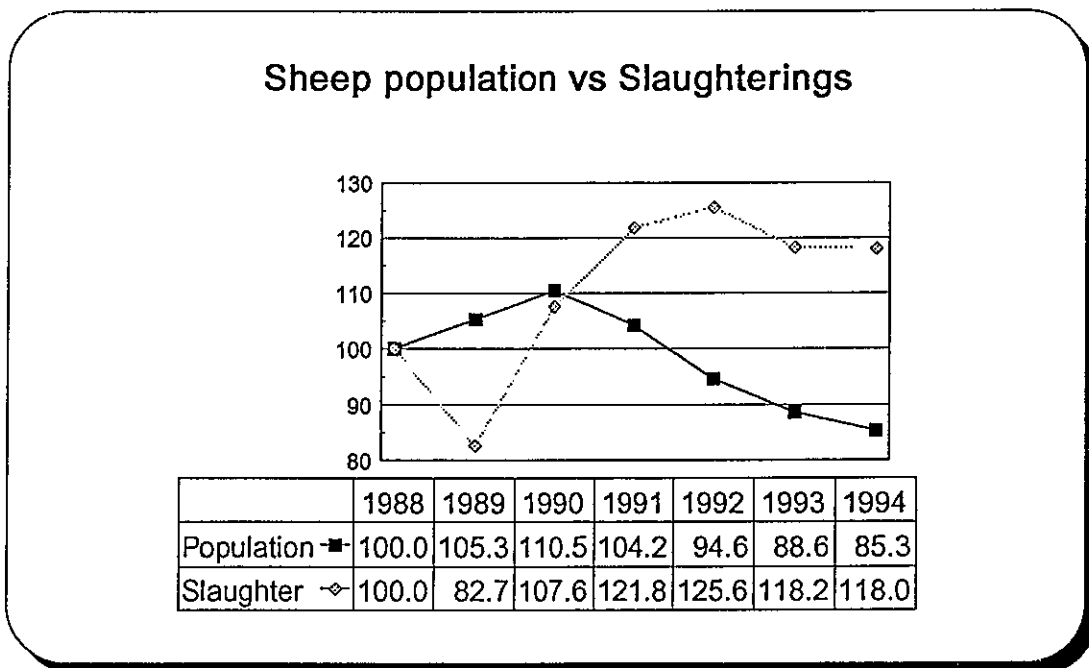
¹ Characterisation of the "No Commercial Value" Sheepskins Opportunity. A Study conducted for the MRC, Venturetech Pty Ltd., December 1993.

² Farmer Survey, Disposal of NCV Skins, M611, MRC study by J.J.Skillecorn Consulting Pty Ltd, 1995.

Table 1 : Australian Sheep Population By States (million head)

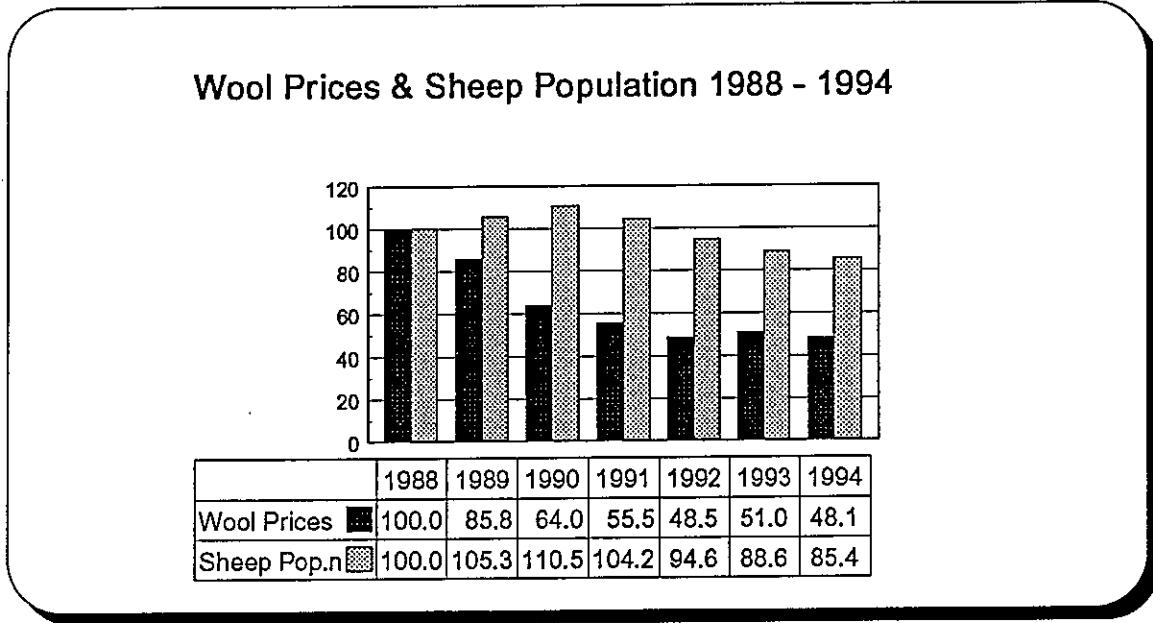
Year	NSW	Vic	Qld	SA	WA	Tas	NT/ ACT	Total	Change
1988	56.4	28.3	14.8	17.7	34.3	5	0.1	156.6	
1989	59.9	29.4	15.2	17.8	37.3	5.2	0.1	164.9	5.3%
1990	62.8	30.6	17	18.8	38.2	5.6	0.1	173.1	5.0%
1991	61	26	17.3	17.5	36.2	5.1	0.1	163.2	-5.7%
1992	53	25.1	15	16	34.6	4.3	0.1	148.2	-9.2%
1993	48.4	23.4	12.9	16.2	33.3	4.5	0.1	138.8	-6.3%

Figure 1 demonstrates the correlation between slaughter numbers and the sheep population. The numbers have been indexed at 100 for the year of 1988 when there were 159.9 million sheep and lambs in Australia and 14.949 million sheep were slaughtered (not including lambs), this latter figure also indexed at 100. By 1990, the sheep population had increased to the second highest number on record namely 173.1 million head and it was this year when wool prices crashed with the Australian Wool Corporation reserve price scheme being abandoned in early 1991.

Figure 1 : Index of Sheep Population and Sheep Slaughterings.

Looking at wool prices over the same period, the relationship to sheep numbers can also be noted.

Figure 2 : Sheep population in Australia and Annual Average Greasy Price for Wool



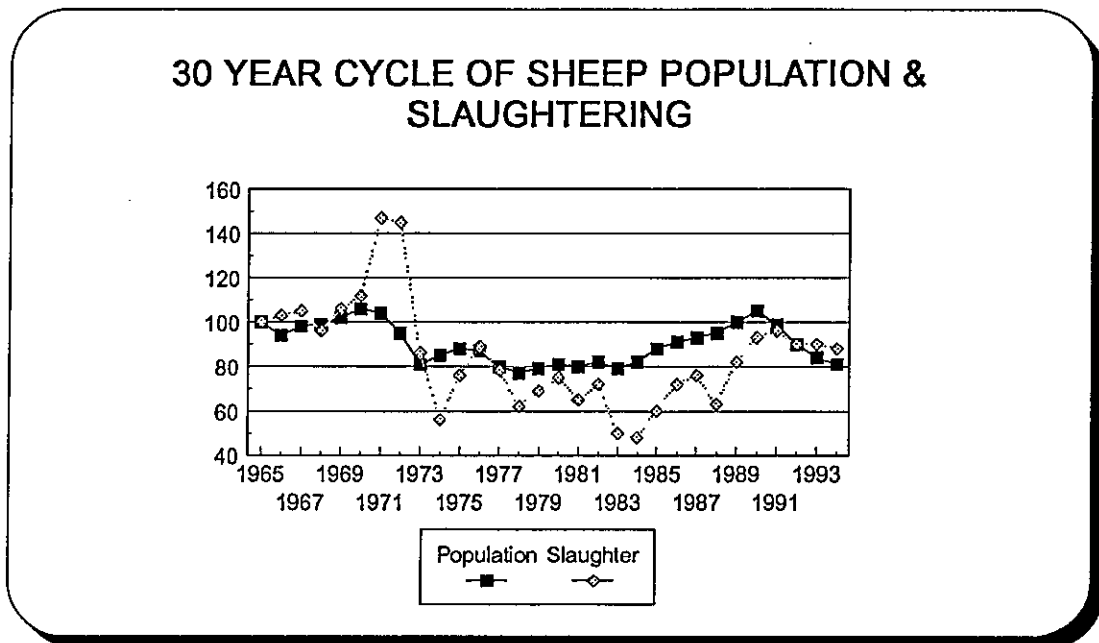
In Figure 2 it can be noted that when wool prices begin to fall, the initial reaction is to increase the numbers of head of production to offset the falling prices for wool. As the price continues to fall, so then do the numbers of total head fall.

The critical aspect about the fluctuating numbers of head coming forward to slaughter is that the sheep skin industry has to accommodate the significant changes that occur. To do so with any sort of efficiency and effectiveness, requires a marketing effort commensurate with the supply. Like most agricultural markets, the supply side of the market equation, is almost inelastic. That is, supply can jump around for reasons other than demand factors. Significant weather and/or wool price changes will alter the slaughter numbers over time, with droughts having a more immediate effect, providing they are wide spread, but as the above figures indicate, the changes are slow thus the peaks and troughs of the industry are exacerbated. In the case of sheep skins, they are a by-product of a by-product (merino wool is the product, mutton is the by-product and sheep skins are the by-product of mutton). A report prepared for the Australian Meat & Livestock Industry Policy Council³, concluded that "...Mutton is a by-product of the sheep and wool and as such is subject to wide swings in the volume produced." *Given the structure of the industry, it is not surprising that in years of low prices, a large number of sheep skins become economically worthless or of no commercial value.*

³

A Review of the Mutton Sector of the Meat and Livestock Industry. AMLIPC October 1989. pp 43

Figure 3 : 30 Year Cycle of Sheep Population viz the Slaughtering Numbers Per Annum (Indexed at 100 in 1965)



Given variation by over 100% in slaughter numbers over the years, as shown in Figure 3, its important to look at the industry structures and see how it caters for such wide fluctuations. Several reports such as Andersen & Hassall⁴ and Coffey and Bennett⁵ show how the industry operates and note the destination of sheepskins to various sectors. Using these reports and building on them we schematically show the flow of skins through the industries to reach the consumer. Along the way, many skins are dumped as being of no commercial value.

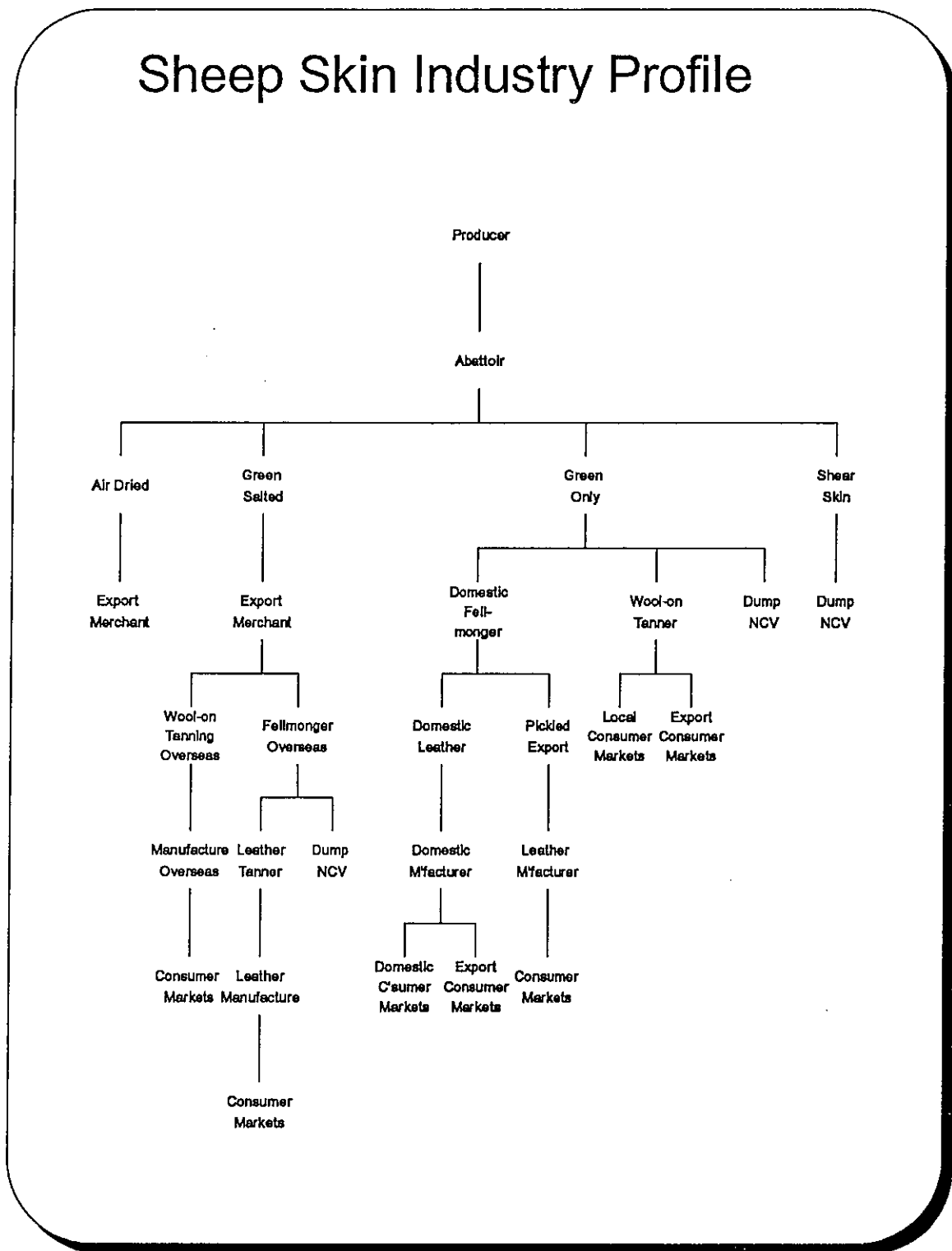
4

Report On The Strategic Potential for Value Added Production of Sheepskins. AIDC, May 1988.

5

A Situation Analysis of the Sheepskin Industry. Coffey MPW in assn with J.M.Bennett Consulting Services P/L AMLRDC, 1990

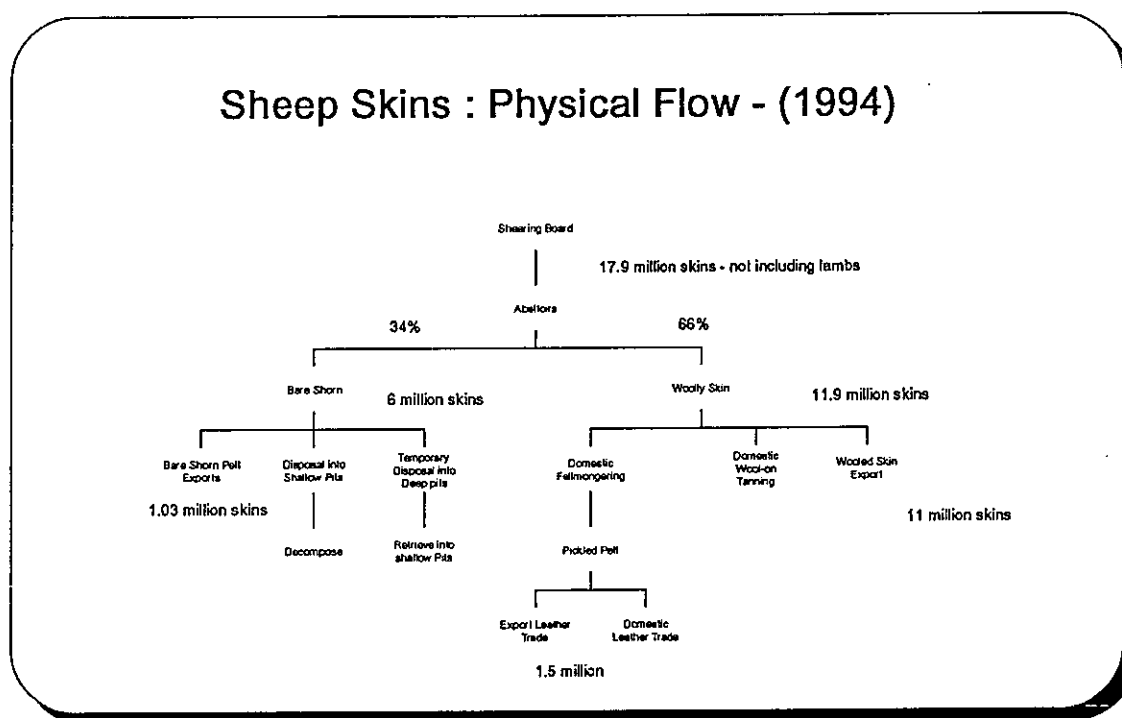
Figure 4 : Sheep Skin Industry Profile.



It can be noted that industry is quite diverse in the treatment of the skins leaving the abattoirs in terms of preservation methods and after how each skin is handled. This schematic view as shown in Figure 4 does not necessarily cover all the contingencies in terms of ensuring that small flows between sectors are noted. For instance, there are some cases of shorn skins still being fellmongered to capture the pelt in pickled form where it will then go onto the leather trade.

Figures derived from the Australian Bureau of Statistics (ABS) for 1994 and the Australian Meat & Livestock Corporation (AMLC) indicate to some extent the various quantities going into each sector, however there are strategic gaps in the information for which data is either not gathered or is not readily available. The quantities for 1994 are as follows in figure 5.

Figure 5 : Sheep Skin Flows 1994 (Not including lamb skins) :



The number of skins being bare shorn have been determined by the survey carried out in conjunction with this Study, or commented upon Robert's⁶. The statistics on total slaughter have been sourced from the AMLC, and the number exported has come from ABS. Given the mix of assumptions and objective data noted above, it means that 900,000 woolled skins plus some bare shorn skins came forward to the fellmongering trade, as a total of 1.5 million

⁶

Ibid

skins were exported as pickled pelts. Bearing in mind timing differences and sales from inventories this figure has some credibility. However it would be valuable to be able to gather data on the wool-on tanning industry and follow this path to see what the results were. *The importance in knowing these figures is related to the question of NCV skins. If producer education could reduce the number of skins coming forward in bare shorn state, there should be a corresponding increase in the availability of wool-on skins, going to the fellmongery trade or to wool-on tanning.*

From the above figures, it can be extrapolated that some 4 million skins were dumped in 1994, or were held as salted bare skins awaiting markets to pick up. During our visits to abattoirs we found evidence that such practices were undertaken, indeed it was common at McPhee Meat Packing P/L⁷, Wodonga, where it was explained that better returns were gained by salting and storing than dumping.

Figure 6 : Average Value of Skins and Number Exported.

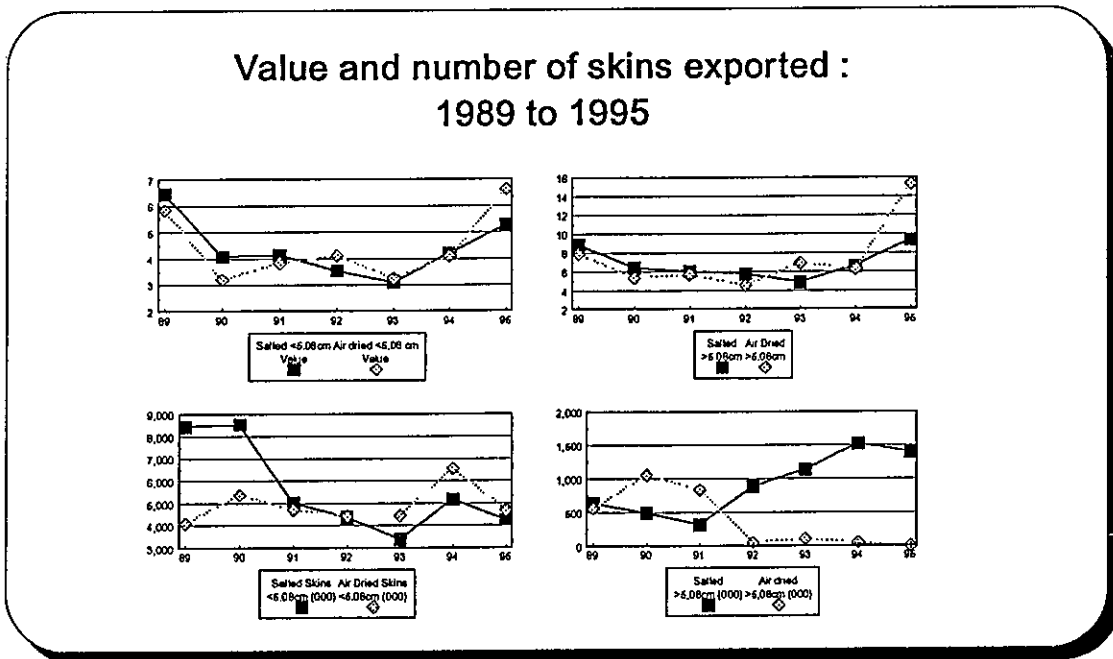


Figure 6 notes the number of skins, both long wool and short wool sheep skins plus the numbers of skins exported in each category. The significance of these figures is the low prices paid during the four year period of 1990 to 1994 for the two categories and the

reduced number of long woolled skins being exported air dried. Since 1992, the numbers of air dried long woolled skins, has fallen right away, reflecting the increased demand for salted skins arising from local exporters.

Figure 7 : Average Value per Sheep Skin & Number of Skins p.a. exported (indexed)

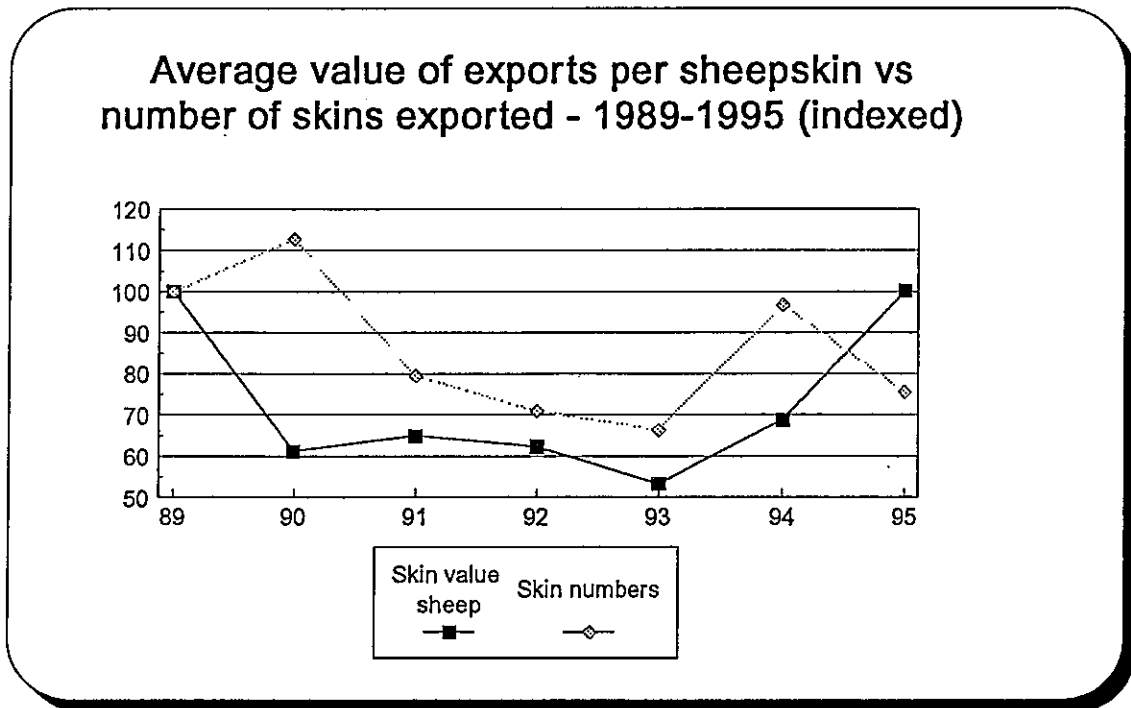


Figure 7 shows the combined totals of figure 6 and the base year for index purposes is 1988. The figures per skin in terms of value mask the fact that many skins were buried as NCV skins during this 4 year recession, as they only show values of those skins exported.

Figures gained from the Meat Industry Authority NSW, show the relative change since 1990.

Table 2 : Weekly Skin Reports as at or around June 30 of each year : 1990 - 1995

Year	Merino Sheep Skins 25 micron & finer	16.1-20kg Carcass Free of VM	20.1kg > Carcass Free of VM
29/6/90	0.5 - 1"	\$0.05	\$0.20
28/6/91	as above	\$0.20	\$0.30
26/6/92	as above	\$0.50	\$0.75
26/6/93	as above	\$0.60	\$0.75
1/7/94	as above	\$2.75	\$3.25
9/6/95	as above	\$5.60	\$6.05
Prices are on a per skin basis			

The above table 2 shows the lighter skins rising in price from just 5 cents per skin in 1990 to \$5.60 in 1995. The dates of around the end of June of each year was randomly chosen and does not show the fluctuations that may have arisen within each year under study.

Nevertheless, it indicates the extremely low prices that prevailed through much of the early 1990's.

Costs of Skin Preparation :

The cost of preserving by salting, is in the order of \$1.30. This covers the cost of the salt and the labour necessary to salt same. Bearing in mind the likely proceeds from the skin, it becomes a non commercial proposition hence the dumping of the skins. Local Government dumping charges are in the order of \$0.30 to \$0.50 cents per skin⁸ which make dumping much more viable for many processors to consider, rather than preserving.

Merino Sheep Pelt Quality :

Merino sheep skins are unique in comparison with other breeds of sheep skins. They are ribby, often damaged by both the slaughter process and by vegetable matter, and as they have

⁸

Dr John Snowden : Department of Agriculture. Western Australia.

arisen from generally older sheep i.e. 5 years or more of age, are of generally poor quality. It has been estimated that as a general rule, some 60 to 70 per cent of the pelts will be of low quality⁹ requiring the addition of chemicals to fill the leather.

To make matters worse, merino sheep skins have built a reputation of being unsuitable for fine leather, most of which is attributable to the ribbiness of the pelt and shearing scars. The perception held by the international industry is that it is only suitable for low quality leathers and only little marketing effort has been put into establishing a niche market highlighting its uniqueness. There are examples of manufacturers¹⁰ trying to establish such a market however they are small in comparison to the overall market size.

The lack of an industry grading system has not assisted the industry either. Again there was some work done in relation to the establishment of a standard skin specification¹¹ in the mid 1980's with CSIRO Division of Wool Technology, Leather Research Centre and the University of New South Wales, School of Fibre Science and Technology, however it was only funded for one year and the work lapsed. *Our research has not indicated any further developments in this area and indeed, we registered several concerns from a number of industry participants who felt the lack of an Australian standard description system was detrimental to the good health of the Industry.*

Given the diversity of quality of merino sheep skins coming forward to potential fellmongers or to the tanning industries, it is little wonder that when prices fall for sheep skins generally, the bare shorn merino sheep skin value deteriorates to NCV status.

The Dumping of Sheep Skins in Australia :

As noted above, a large number of sheep skins are dumped on an annual basis. Whilst the number will vary according to the prevailing market conditions, the basic fact is that there has, and probably will be, large numbers of skins dumped each year, irrespective of the market. This practise arises through the sheer weight of numbers of bare shorn pelts coming forward, the small but significant practise of some processors shearing sheep skins after

⁹ Mr Trevor Caithness, Gippsland Leather, Leongatha. Victoria. 056 642213.

¹⁰ Josmar Leathers, Canberra. ACT. John Foldszin 06 281 3276.

¹¹ Dr Peter Gordon, CSIRO Div of Wool Tech., Leather Research Centre, Clayton. Victoria. 039 542 2411.

slaughter, and damaged pelts/skin pieces that arise through the slaughtering practise. There is evidence of increased activities in fellmongeries in Australia, but given that the market supplies some 30/32 million skins (including 15 million lamb skins), the cast for age merino sheep skin market will always have problems.

In order to reduce the magnitude of the problem, this Study was commissioned by the MRC to "...review the various options available for both the economic use or environmentally sustainable disposal of NCV skins from the Australian red meat processing industry..."

The Consultants approach to this subject was to look at three separate pathways namely :

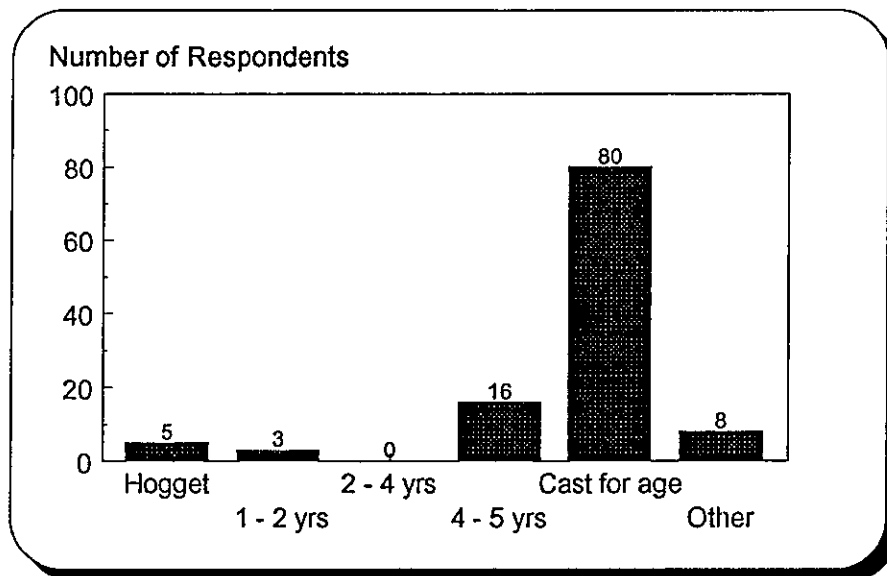
1. Education of woolgrowers in reducing the number of bare shorn pelts coming forward to the abattoirs.
2. Establishing the environmental problems arising from the various practices employed by selected Australian abattoirs.
3. Establish alternatives open to the processor which give rise to increased value of the skin rather than dumping same.

1. Educating Wool Growers.

As noted above some 6 million sheep skins came onto the market each year where their economic value was somewhat limited as they were bare shorn. The Farmer Survey undertaken as part of this Study explored the age of the sheep that were sold into the mutton trade, and to what extent these were bare shorn. Figure 8 and 9 indicate some 79% of the sample of woolgrowers bred their own sheep and 71 per cent of ewes were sold as cast for age ewes and another 14 per cent were sold towards the end of their perceived economic life as 4 to 5 year old sheep. Wethers were sold at all ages but only 20 per cent were sold as cast for age.

The reason why ewes are sold at the end of their perceived economic life is related to their obvious breeding potential. They form the basis of constant renewal of the farmers flocks and thus have two self evident purposes namely producing replacements and growing their share of the annual wool production.

Figure 8 : Age of Ewes when Sold



When the ewes reached the end of their value to the farmer, some 28 per cent of the farmer sample indicated that they sold the ewes directly from the shearing board and another 21 per cent indicated that they sometimes did so. By extrapolation it was noted that given 130

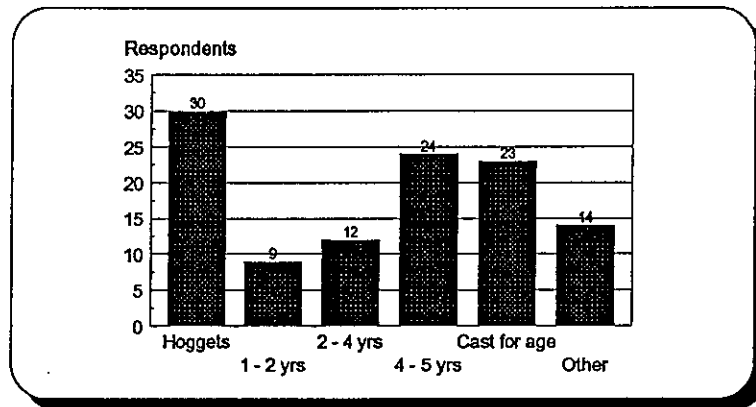
million sheep, half of which were ewes, it was deduced that some 5 million ewes were likely to come forward to abattoirs as bare shorn ewes.

Table 3 : Estimated number of bare shorn ewes sold per annum.

Total population	Number of ewes	% sold per annum (5yrs)	Number of ewes sold per annum.	% sold directly from the board	Estimated number of ewes sold as bare shorn
134,000,000	67,000,000	20%	13,400,000	28% Yes and 10% Sometimes Total 38%	5,000,000

Wethers on the other hand, are sold at various ages due to the various classes of farming enterprises. A sheep breeder might sell his wether portion as hoggets for other producers to produce purely a wool clip. The latter producers in turn may run the wethers through towards the end of their economic value as wool producing sheep. There are others as figure 9 attests and these are likely to be producers who breed and sell wethers in the live sheep export trade.

Figure 9 : Wether age when sold.



Given that a significant number of wool producers are likely to sell bare shorn sheep onto the mutton markets, the Consultants addressed the issue as to why this was so and to what extent was it likely that they could change to selling with some wool on the skin.

The main reason given for selling directly from the shearing board was that they had insufficient feed on the property and had to make room for replacement sheep coming through. Cash flow was another significant reason and it is presumed that cash had to be raised at that time to pay for the wool harvesting process.

To provide a reasonable amount of wool on the skin and, more importantly, to heal shearing scars, it was estimated that it would be necessary to continue to run the sheep upwards of 8 weeks after shearing¹². As noted in table 3 above, if half of the latter did sell off the board, it can be extrapolated that the industry might have a good chance of convincing the overwhelming majority of farmers that it was in their interests to run the sheep a little longer¹³. *It was clear from the survey that factors intervened in farming life which precluded a mandatory withholding period. These include the vagaries of the weather and the markets.*

The overwhelming majority of respondents wanted some \$3 to \$4 extra to run their sheep on for a further 8 to 12 weeks. If it was assumed that each sheep would grow about 1.25 kilograms per quarter of a year and the average greasy value per kilogram of wool was around \$3.50, then it would be a worthwhile proposition in a perfectly competitive market. *Unfortunately, as skin values are set beyond the abattoir and the farmer is selling live weight prior to slaughter process, the likelihood is that it will be discounted significantly or, at least the value so masked, that the producer would feel uncomfortable as to whether the true value was received.*

Nevertheless, an advertising process amongst farmers would be of value as it would continue to highlight the increased value likely to arise by not selling bare shorn sheep. It should place more skins of economic value on the market thus encourage more processing. As processing increased, thus the arrival of new entrants thus greater chance of full value being realised by the wool producers.

A pro-forma brochure has been produced and is repeated below.

Introduction :

The Australian sheep industry is characterised by its wool and its meat. With regard to meat, valuable by-products arise as a result of the slaughtering process, one of the most important is the sheep or lamb skin.

¹² Dr John Snowden.

¹³ It was estimated that 71% of producers produced ewes, of which 28% always did or 21% sometimes did (say half of 21% or 10% would sell bare shorn annually) sell their ewers directly from the board. Some 30 per cent had difficulty in running another 8 weeks after shearing thus by extrapolation, it might be that some 17% of producers might be the target market in the education process.

When adult sheep are killed, as either an adult ewe or wether, it has been the practice in some areas, particularly with the ewes to sell to the meat processor directly after shearing.

Once the skin is bare, its value falls considerably, and when the skin markets are depressed, the bare shorn skins have no commercial value and they must be dumped. Not only is this a loss of potential revenue but it also has environmental implications.

Farmers should avoid selling recently shorn animals and to wait until there is sufficient wool grown before taking such action.

Watch the skin markets through the media, eg farm newspapers or journals, and carefully choose the method of sale that maximises the returns from the sheep, including the skin.

Sheep Skin Markets

***Tanning :** Australia has built quite a sophisticated tanning industry in recent times and significant quantities of cattle and kangaroo hides as well as woolled sheep skins are now being tanned within Australia. The finished sheep skin products appear in a number of forms such as sheep skin rugs, car seat covers and foot wear.*

In the case of leather, there are only a small number of companies that actually tan sheep and lamb leather. The product from this sector is mostly chamois.

***Fellmongering :** Fellmongering is a process where the skin is painted with a depilatory solution of acetic acid, caustic soda and salt, and then stored overnight at 37C in a humid atmosphere, thus allowing the wool follicles to be loosened. The wool is then stripped from the skin. There are, of course, other methods of chemical removal of the wool from the skin.*

The pelt is pickled for the leather industries, mostly going for export. The wool remains undamaged and goes onto scouring and top making following the normal route for wool processing.

Merino skins are mostly exported for fellmongering although there is a re-developing industry within Australia. The Meat Research Corporation has devoted significant sums towards the development of safer, more cost effective and environmentally friendly chemicals to assist the development of the fellmongering industry.

The decision as to whether skins go to wool-on tanning or the fellmongering trade is made upon the value and the type of both the wool and skin. Within the fellmongering process, the decision lies with the wool quality and the length of the wool on the skin. There has to be sufficient wool on the skin to make it economic to fellmonger. If the wool value is judged to be less than the cost of fellmongering, the skin has no commercial value from a wool point of view.

In addition, to these simple rules, there is an assessment of skin quality and quantity. If the skin is damaged either through the shearing or slaughtering process and/or has vegetable matter embedded in the pelt, such as grass seeds, its previous destination to wool-on tanning may be changed to the fellmongering trade.

Good Presentation of Sheep Skins

To ensure maximum returns from the sheep from the property its important to consider the following -

- 1. Is there a commercial quantity of wool on the skin.*
- 2. Is the skin free of cuts*

Bare shorn skins may have some value when skin markets are buoyant but with shearing cuts they are valueless.

Farm Prepared Skins :

To ensure maximum value for farm killed skins it's important to ensure the skin is not damaged in the slaughtering process.

Diagram of Technique to be used.

(not drawn in this report)

To prepare the skin for market, there are two methods of treatment. One is to salt the skin by spreading over both sides of the pelt, some 3 kilograms of sheep preservation salt (readily available from commercial salt suppliers). This will keep the skin preserved for subsequent selling to skin traders. The other way is to air dry the skin by hanging the skin over a pole and drying the skin in the shade for two to three weeks. The skin should be kept from the elements such as rain. Over dry skins crack thus it's important that skins are marketed once they have dried to the point where the surface is pliable but feels dry.

Diagram of a hanging skin

(not drawn in this report)

MRC Recommendations :

1. Husbandry practices should ensure that total sheep on the farm are free from internal and external parasites. Adopt an appropriate program for their control and closely follow the manufacturer's directions for all products used. Ensure sheep dip is free from arsenic. Jet sheep when flystrike is likely. This will help to ensure that the fleece is sound and free from unscourable colour. Crutch sheep to reduce the incidence of flystrike and urine stain contamination.

2. Avoid branding close to shearing or sale and if the sheep must be branded ensure the branding fluid meets AS 4054-1992 (Australian Standards and Test Method for Sheep Branding Fluids). Do not brand lambs. Do not dilute or mix either branding fluids or pour-on dips with organic solvents (petrol, diesel fuel.)

3. Aim to gain the maximum net return for your sheep, particularly your cast for age ewes, by only selling the sheep with at least 12 week's wool growth on the skin. (Wethers destined for the boat or live export trade is an exception to this recommendation.)

4. Check values within the skin markets. In some markets, the skin value will be almost equal to the value of the mutton component. Consider selling over the hooks and marketing the sheep skin separately to the mutton. You will find markets are quoted in rural newspapers. If there is no commercial value for the skin under certain market conditions, consider preservation by salting and selling the skins separately when markets have turned.

2. Establishing the environmental problems arising from the current practices.

During the course of this Study a number of representative abattoirs were visited.

<u>Victoria :</u>	<u>NSW</u>	<u>South Aust.</u>	<u>Western Australia</u>
Gastricum Bros, Dandenong. Echuca Abattoirs Echuca Swan Hill Abattoirs Swan Hill Wodonga Meats Wodonga Barnawatha Abattoirs Barnawatha	Blayney Abattoirs Blayney G.M. Scott P/L Cootamundra Codgegong County Council Mudgee Fletcher International Export P/L Dubbo.	Metro Meats Murray Bridge Bordertown Abattoirs Bordertown Harvey Bros Lobethal Samcor Gepps Cross	Shark Lake Meats Esperance Metro Meats Katanning V&V Walsh Bunbury Metro Meats Linley Vale

In addition to the above abattoirs, contact was made with Department of Environmental Protection - WA., Cockburn City Council - WA., Blayney Shire Council - NSW (2), Australian Meat Exports Cannon Hill - Qld., B & E Air-conditioning, Dandenong, - Vic., and Blue Ribbon Meat Products, Launceston - Tasmania.

Report on Abattoir Visits :

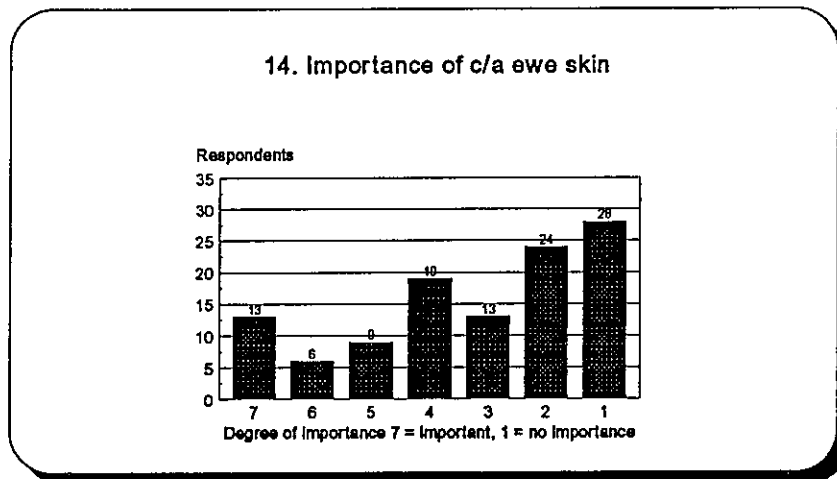
Summary : In essence, the Industry has found answers to the disposal problems of NCV skins in various ways, one of which included burying the unwanted green skin directly into pits, both internally on the property and externally through contracts with local Councils, waste disposal companies and/or others such as local farmers.

This practice has significantly eased in 1994 as there are markets for all sheep skins, with few skins actually being of no commercial value. The exception will be shorn, torn or damaged

skins. Skin pieces arising from the slaughter process are being put through the rendering plant in all abattoirs visited.

Nevertheless, there are many pits throughout Australia where sheep skins have been buried. In several cases, in order to keep the smell and the flies away whilst the pit is open during the dumping process, a layer of lime was spread over the top of the skins. At the end of the day, up to a metre of soil was then bulldozed over the top of the pit. The liming practice has the reverse effect of what is required once the skins are buried. This action reduces biological degradation to very low levels and as a result, skins dry out underground and remain there for many years. The other important point to make in relation to our visits to abattoirs is that nature of thought about the skin industry is relatively unsophisticated and in urgent need of re-thinking at meat processor or indeed farmer end.

Figure 10 : Wool Producers Perception of the Relative Importance of Cast for Age Ewe Skins.



The surveys of farmers indicate a lack of knowledge about the skin business and values, subscribing little or no importance to the skin, as shown in Figure 10, whilst many processors see the industry only as a means to get rid of a messy by-product. They hold a tender on a daily basis for the green skins, and leave it to the skin traders to take over the management, and the trading risk, of the skins. The traders in turn would be nearly always fitting those skins into a forward order of one kind or another. Very few skins are sold on the spot market by traders as they simply do not take the market nor inventory risk. Whilst such traders include

fellmongerers, who can be counted virtually on one hand, and tanners of whom there are quite a few, the overwhelming majority of skins are being exported as salted raw skins, as noted in Figure 5.

The ultimate value of the skin is not necessarily being reflected to or by most meat processors who simply rid themselves of the responsibility on a daily basis and, thus cannot reflect in higher returns to producers. Where there are integrated works such as Fletchers the incidence of bare shorn pelts is minimal as that company simply doesn't buy such sheep in the first place. The producers in the Dubbo area of NSW are being trained to sell sheep with a good coverage of wool still on their back at the time of sale. This can be compared to other areas where competition at the meat processor level is weak, eg. Western Australia, where market signals are not being transmitted and the likely incidence of bare shorn pelts is probably higher. This is certainly the case in various parts of New South Wales, for example in the Riverina.

Unless the meat processor recognises the intrinsic value of the sheep skin, the market signals are never going to reach the producer. That is not to say that such meat processors do not know the value of green skins, in every case they would, however they are not involved in the processing of such skins, thus in our opinion, lose the additional benefits and knowledge.

Education of the meat processor is a possible answer towards improving the market signals to producers about skins. We suggest that further research needs to be undertaken as to why meat processors wish to leave the semi-processing of the sheep skin to others. Whilst ever they do, we will continue to see large numbers of untreated salted skins leaving Australia for value-adding processes in overseas locations.

1. Blayney Abattoirs : (Bill Orrish - Phone 063 682611)

Blayney abattoirs kills about 7,000 sheep and lambs per day, 80 per cent of which would be merino, and 20 per cent crossbreds. In addition, it slaughters goats, pigs, calves etc.. It has no fellmongering processes either within or adjacent to the works, however there is a tannery close by. Some long woolled sheepskins are shorn on site (about 5%), after partial drying, and

the pelts are dumped. These total about 2,000 to 3,000 skins per month and are buried on farm in the Trunkey Creek area. This amounts to about two truck loads per day.

Tenders are run on a daily basis however one of the tenderers is McPhee, the owner of the abattoir. The owners require its skin department to tender independently against other tenderers to purchase skins it can fit into its forward orders. It does this quite successfully as it buys some 75% of the skins on offer.

A large pit, approximately 20ft by 50ft by 15ft deep, was constructed on-site for the burying of skins in 1993. Upon inspection, without digging, there was no evidence on the top of the ground to indicate exactly where the pit was. The area was stony barren country reflecting the amount of stock passing over it to some extent, but grass was growing in the parts of the area, similar to all other close-by areas.

Discussions were also held with the Blayney Council¹⁴ as we were informed that for several years the local Council had accepted skins for burying in the local tip area. At one stage they accepted up to 30,000 skins per week. The Council officers reported that they had recently had cause to dig up one of the areas where skins had been buried some 8 years beforehand. Only remnants were left such as stringy wool and remnants of skins. The practice was brought to an end when the Council became short of tip area therefore had to restrict what was coming in. Leaching problems have never been checked although they suspected it was of no concern. They were still accepting salty off-cuts from B&B, the local tanners.

During a later visit, the Council opened three pits for the Consultants. Pits 1 and 2 were deep pits where many layers of skins (up to 2 metres deep) were piled in on top of one another. They were covered with about one metre of soil. Pit 3 was a shallow pit but was about 25 years old and the covering of soil was only about half of a metre, but according to the manager, the skins were not piled on top of one another in bulk. They were apparently only a few skins deep.

¹⁴

Daryl Riley and Paul O'Neill - Environmental Officers/Engineers of the Blayney Council.

Pit 1 : This pit was covered over about 8 years ago where skins were buried with the sludge from septic tanks. Despite the eye watering odour, the wool and the skins were more or less intact, showing only about 25% of the material degraded.

Pit 2 : About 15 years was the estimate as to when this pit was closed. Again there was still plenty of wool and skin but we estimate it was about 60 per cent degraded.

Pit 3 : This pit was more shallow and there was virtually nothing left. It was still obvious that wool was there but the skin had completely degraded.

This result was very much in keeping with both anecdotal evidence given to us about deep pits and it also was in keeping with the degradation of skins we saw in both Western Australia and Murray Bridge in South Australia. In deep pits, it appears the skins simply dry out or alternatively overwhelm the bugs so that decomposing activities are very slow. The encapsulation creates conditions which inhibit the metabolism of the anaerobic micro organisms. Shallow pits with smaller layers of skins appear to present the best option since the products of bio-chemical activity can diffuse/disperse into the soil, and moisture and atmospheric oxygen are more available to promote those processes.

2. G.M.Scott Pty Ltd - Cootamundra (David McAitch 069 422200)

This was a small abattoir located some 5 kilometres from the town. Its kill was approximately 2,900 sheep per day of which 1,700 were crossbred lambs, the balance being sheep. About 160,000 skins were buried in 1993 and these were mostly from cast for age merino ewes. It was felt that there were no environmental ill-effects caused by the burying practice. The pit in which the skins were buried was typically one metre deep by 100 metres long, with skins being covered by a shallow depth of soil.

Skins were handled in some old, disused flour mills on the edge of town. Green skins were trucked in for salting and subsequent sale by tender.

3. Wodonga Meats Pty Ltd - Wodonga (Laurie Hogan 060 241077)

The abattoir was slaughtering some 3,500 sheep per day at the time of the visit. There was old skin pit on site which could be seen from the skin shed. It was now a cattle yard and impossible to tell if there were any environmental problems associated with the pit. In the opinion of Mr Hogan, sheepskins will not decompose under ground. He knew of cases where they had been buried for up to 25 years yet were still more or less intact. He quoted a case in Shepparton¹⁵ where some construction of a building over a 20 year old pit was stopped as the skins had not decomposed and the foundations of the building subsequently compromised. In his view skins, when buried, were like silage although he made the interesting comment that "they might decompose if mixed with say Boric acid and lime". He also knew that Wagga abattoirs had buried many hundreds of thousands skins in around the plant when it was owned by the local Council.

The Environmental Protection Agency nor the Albury Council would allow burying of sheep skins in the current planning environment, as the whole locality was part of the Murray River basin and on a local flood plain.

The abattoir now disposes of NCV skins by rendering and mixing in with the meal, although had to ensure satisfactory blending and could only take small quantities. The NCV skins that went through this process were either dermatitis affected, heavy rib or abattoir damaged and totalled about 100 to 150 per day. This is done by slicing the skin into small pieces and spreading same through the production.

Bare shorn pelts (up to 1") were stockpiled during 1993 by salting and storing. At one stage they had 100,000 such skins in storage awaiting favourable markets.

Management had looked at fellmongering but had decided that it was not viable for them to enter such a market as it would be subjected to stop and start operations, whereas it required constant supply. They also had problems with dealing with the environmental problems associated with a fellmongering plant in Wodonga.

¹⁵ New Dookie Road, Shepparton.

In some cases, they would shear sheep prior to slaughter if they felt that it was more worthwhile to obtain the wool part of the skin. The order of the kill was decided by the skin value, that is, they classed the day's kill by draughting according to wool length and value of skin. They made 14 lines of salted skins and 8 lines of air dried skins. Those skins that were airdried were put out for tender on a weekly basis. The salted skins were packed and shipped overseas directly by the abattoir owner.

Mr Hogan also noted that lamb skins were falling away in quality as the push to lean meat had meant breeding was 1st cross lambs being crossed with either Merino or Corriedale. Ribby pelts were a direct result. He would also preferred to handle frozen skins rather than either salted or air dried skins.

4. Barnawatha Abattoirs - Barnawatha (Phillip Heverson 060 267206)

This was a small works to the east of Barnawatha, killing some 1,000 lambs per day and around 200 sheep. NCV skins were rendered and preference was not to take skins with over 2 weeks growth for grown sheep. Lambs skins, and long woolled sheep, were sold through the daily tender. Bearing in mind most of the kill was lambs, the number of NCV skins was obviously small. He made the point that, as any NCV skins or pieces are rendered, the wool tends to discolour the tallow as it needs to be cooked longer. They were getting \$500 per tonne for tallow which was sold forward, and if discolouration was not to specification, then a discount applied at 4 per cent for each colour grade less than specification.

5. Gastricum Bros - Dandenong (Ray & Darren Vintens)

There is currently no problem with NCV skins due to the season and the demand for 'hot off shears' type of skin. Lambs are the predominant kill at this time. There is a shortage of lining leather type and a demand from China for most sheep skin types to produce soft leather coverings such as pillows or cushions with wool on or off. All skins are prepared and sold. South Africa is out of the market. Fellmongering volumes are 2000/day at present with a maximum of 4000/day.

Previously, but not for two years, NCV skins were dumped by a private company (Dumpmaster) in their own dump paid for by the farmer as part of the killing fee expenses (additional 30 cents per kill). If there is a problem with the environment it is Dumpmaster's.

Effluent treatment from the abattoir, rendering and fellmongering works is rigidly controlled by the local EPA. Used salt is dumped.

Other skin dealers have returned their NCV's to the abattoirs for dumping or have made their own arrangements with waste removalists. No evidence of on-site burying by abattoirs or fellmongers was readily available..

This organisation is aware of its responsibilities and has conducted farmer workshops to alleviate the NCV and other skin problem.

6. Echuca Abattoir and Ashton Pty Ltd - Swan Hill (Geoff Fraser)/(Rob Woodward)

These abattoirs were reluctant to see us personally and preferred to talk over the phone. Both have currently no NCV skin problem but were not sure whether there were any previous problems. Echuca and Swan Hill have a tender scheme for all skins and the main bidders are skin dealers, fellmongers/tanners such as Kreglinger, RH Hides and Vic Hides. There is a local tannery in Echuca that also takes skins.

Volumes are - Echuca 4-6000 sheep (animal type varies) per week, Swan Hill - 10,000 sheep per week (mainly merino).

Echuca City Council has indicated that there is no evidence of burying in their area but believe an application has been made with another council to dump/process solid waste from the abattoir. A follow up conversation with the abattoir revealed that they have been experimenting with waste conversion.

7. Tatiara Meat Company Pty Ltd - Bordertown (Dale Cameron)

The abattoir has no NCV skin problem at present and has had none for the last 3-4 yrs. They run a daily open tender scheme with six bidders present, with the tenderers taking the whole line presented. They rendered the few NCV skins, as they were low volumes being mainly a lamb kill i.e. 95% of 15,000 slaughtered per week (September 94) are lambs. It was suggested that they could render 500 skins per month if spread over a period. Admitted having dumped previously but was understandably cautious over this issue.

8. Metro Meat Ltd - Murray Bridge (Kim Jackson)

NCV skins are currently not a problem due to the season and buoyant market for skins - "everything is sold including hot off shears". A similar situation to that occurring in the other abattoirs visited. They salt preserve their own commercial skins. Trimmings, pieces and oddments (very small and damaged skins) are currently buried about 5 kilometres outside of the town in a privately owned field of 150 acres. Volumes, at present with over-time were 4900 per day of which 95% were lambs.

We first contacted the local shire to gain their opinion with regard to dumping. They were very interested probably due to the proximity to the town of the burial site (we visited it later) and the lack of decomposition of the skins in the burial site. Old air-dried skins buried up to 20 years ago with the shires knowledge of 10 year old buried skins having been dug up whole. There is a water course through this field which runs occasionally exposing old skins. The clay soil and dry conditions seem to prevent decomposition. The skin and possible offal material is buried in 3 metre deep trenches and covered daily (a shire requirement for smell and fly control) by a 600 mm soil layer. There is no leaching to underground water systems except for the unsightly exposure during storms. The land surface is useable and old burial sites were planted with grain crops.

The interesting revelation was that the company was experimenting with composting of skin, paunch, rejected offal and manures under the guidance of the shire and through a private contractor over the past 6 months. The contractor takes the abattoir dumped unsalted skins

and skin pieces mixes them with paunch contents and animal manures (the experimental ratio is approximately 1 part skins to 2 parts paunch/manure mixture) using a bobcat type of vehicle. This mixture, it is said, takes 4 weeks to form a compost; we felt that this was ambitious. We observed the compost pile and except for some plastic bag contamination and undecomposed wool was an agreeable material with some smell (like a sewage effluent). This seems to be acceptable for the local government officer. The contamination could be controlled and lack of moisture can slow the process. The local government's comment was that the process suitability required adequate quality control as to the contents ratio and type. The process was halted due to the lack of raw materials.

9. Lobethal Abattoir Pty Ltd - Lobethal (Geoff Harvey)

This is a service works and tenders out for the skins and any possible NCV charges are passed back to the skin owner when occurring. Currently has no NCV skins either those from hot off shears or from non saleable damage or size. They have a daily tender scheme and Adelaide skin dealers bid. A contractor picks up trimmings and paunch material for composting. Belly pieces are left on the skin. There is no dumping. The abattoir is very clean and unobtrusive with little smell, covered yards, pleasant buildings and effluent distributed to the local sewer. The location of the abattoir is on the edge of a tourist town in the Adelaide hills.

10. South Australian Meat Corporation - Gepps Cross (Des Lilly) & International Hides (Sam Allen)

This is a service works with 3600 sheep per day in a single shift with minimal lamb. Client tenders, contracts or sells skins and wastes as it is the client's property. What happens to these wastes is not the abattoir's concern but recognises that there is a potential problem as this abattoir could be a large source of hot off shears NCV skins. Due to the current market and season there is not a problem. The abattoir does not dry or salt any skins.

The abattoir is located in the north of Adelaide and material such as abattoir wastes and skins cannot be buried locally. The manager suspects that local councils will not take it in their

dumps. The effluent output is to a secondary standard and consists mainly of paunch and manure material.

We contacted a local hide dealer adjacent to the abattoir who indicated that if it was a problem he pays 'Clearaway' to get rid of the NCV skin and wastes. This cost is built into the killing fee and passed onto the producer. He gets few 'bares' and his volume is 8500 skins per week of which 3000 are lambs from successful tenders with abattoirs.

11. Shark Lake Meat Works - Esperance (Alan Read)

This is a domestic works, killing about 1,300 per day of which 90 per cent is mutton. It appeared to be well run and very conscious of a good quality take off. Quality is quite closely monitored. Virtually all skins are drum salted, however where wool exceeds 1 to one and half inches, the skin is first shorn. They are getting between \$1.80 and \$2.80 for shorn salted skins.

In the past NCV skins were buried on the site but for the last 4 years they have had only a limited number of NCV skins. *The limited number they do get are used to recover degraded or denuded land. The skins are laid 3 to 4 deep on the bare earth, covered with about 10 centimetres of sheep manure ex the yards then covered with earth to a depth of 7.5 to 10 cm. The earth is then seeded. The areas so treated recover quickly and there is no odour problem.*

The abattoir have no problems with the local shire council who are aware of their activity.

12. Metro Meat International - Katanning W.A (Jim Gracie)

Mr Gracie was reluctant to discuss the issues and referred us to Peter May at Linley Valley Abattoir, a sister company at Linley Valley. Mr Gracie did say however that they had few NCV skins and could sell all short woolled skins available.

We visited the Katanning Shire Council (John McRobb) to discuss the past problems. He advised that for about 3.5 years from 1990, the abattoir was allowed to dump their skins in a section of the local tip. However after a great deal of complaints from local residents about the

smell of the skins, the Shire put a stop to the practice. They looked around for an alternative site without success and thus were unable to allow Metro to continue. The Council is not opposed to the disposal of NCV skins by burying and have no environmental concerns, provided it is carried out responsibly and with due regard to the potential odour problem. Metro are now burying some skins on their own property and also have an agreement with a local farmer who is willing to run a pit however with regard to the latter they are awaiting EPA approval.

13. V & V Walsh - Bunbury W.A. (Greg Walsh & Ian Penny)

Again a domestic works, killing about 3,000 per day of which 50% are lambs, the balance sheep. Lambs are mainly a service kill for Woolworths, W.A. A well run works with an apparent eye to quality. All skins are salted and only have a few NCV skins. In the past NCV skins were buried on site. The present owners have no problems with the Shire although the previous owners, Derby Meats, had considerable problems.

Mr Walsh raised the issue of skin trimmings, a considerable quantity of which is produced each day. The works has no by-products plant, thus no immediate disposal avenue. The pieces are salted and dumped into pits which are not necessarily covered with earth on the same day.

14. Metro Meat International - Linley Valley Abattoir W.A (Peter May)

Mr May is the Hide and Skins Manager WA for Metro. He stated that no skins were dumped. As well as selling into China, they are selling short woolled skins into Europe. He admitted that they were under pressure from the local shire about a year ago. This was confirmed by a letter sent to Dr Snowden, Department of Agriculture W.A. at around the same time.

15. Codgegong County Council - Mudgee NSW (Pat May)

The abattoir is a service works for a number of meat processors. It kills about 3,000 sheep and lambs per day of which 50% are sheep. Again this abattoir has no NCV skin problem at the moment but has buried thousand of skins over its property. They do not believe it to be an

environmental hazard and thought that if we wanted to open the pits it would be no problem. They did not know the extent or timing as to when the buried skins broke down, however the action of placing lime on the top of the skins prior to covering with earth seems to be at odds with the burial practice. A pit was still running for the damaged skins that came forward on a daily basis but the number of skins was quite small. The pits were about three metres deep and about two metres of skins were dumped followed by about a metre of earth after the layer of lime had been added.

The green skins were tendered out on a daily basis to two main traders, one of whom air dried, the other had salting drums on site.

16. Fletcher International Export Pty Ltd - Dubbo NSW (Cameron Crowley)

An object lesson to other sites where the only waste product appears to be the bleat of the sheep. It has its own fellmongering section as well as a wool scour and just being opened a mini top making mill.

They had dumped skins from time to time merely by digging a large trench, up to 2 metres in depth, dumping in the skins and covering over with earth. However they did mix other protein in from the plant to assist the rotting process. The area that has had this treatment is currently undergoing seeding for pasture at the time of the visit.

They sell some skins in salt to overseas interests but sell in their own right rather than through traders. Long woolled skins go through the acetate fellmongering process with the wool going onto the scouring and topmaking mill and the pickled pelt being sold into the leather markets of the world, mainly Europe and South East Asia, Japan but not China. Salted skins are being sold into China.

Skin pieces are going into meal but would like to install a batch cooker to allow better rendering to take place.

They make an interesting point that they do not buy bare shorn sheep, thus encouraging the wool grower to sell sheep with commercial quantities of wool still on the back. In other words, market signals are being sent that discourage sale of sheep directly from the shearing board.

17. Monash University (School of Biochemistry)

Discussed processes which have been developed by the university to produce commercial by-products from bovine skins. These by-products (Hyaluronic Acid, Dermatan Sulphate and Collagen) can be used as high value cosmetics and medical supplements. The process recommended is cheap and efficient although requires wellmangled skins to improve quality and cannot be effective in multi-purpose production of all constituents, only one at a time.

A problem raised was that there is little current knowledge of the composition of sheep skin to prejudge the outcome of processes similar to what was discussed. The University has proposed that small project funding be provided for an investigation into the composition of sheep skin. A supplementary question which could be addressed was; what is the potential market for these by-products, is it sustainable and would the production be of suitable quality.

18. B&E¹⁶ Air-conditioning. Dandenong Vic.

Discussions involved the cooling and chilling process for hot skins with reference to a current project with Dr Snowden. Suitable techniques were described and thought through which allow cool storage of sheep skins rather than salt rendered or air-dried. In essence, it was felt that the current freeze plate process was not quick enough for larger works as they were killing some 12 sheep per minute. This meant that there would have to be several plate freezers available to keep up with production. Another way is the development of a moving chain which goes through a freezer tunnel with cold air cascading down onto the face of the skin. This type of machinery is largely "off the shelf" type of equipment and could handle at least 15 skins per minute.

¹⁶

Owned by Barry Skillecorn, brother of Project Consultant, John Skillecorn (declared to avoid potential conflict of interest)

19. Cockburn City Council - Cockburn W.A.

Discussions were held with Mr Syd Cheverton, Manager Health Services, concerning the relatively recent experience with Robb Jetty Abattoir which has now been closed and their experience with the situation in the Bibra Lake area. About twenty years ago, the Council had a land fill disposal site near Bibra Lake and many thousands of NCV skins were buried there. The area has now been reclaimed as a popular recreational area. The Council was experiencing some leaching from the old tip into the lake but they had no way of telling the exact source of the problems. It may have come from other refuse that had also been buried at the site.

20. Department of Environmental Protection - Perth W.A.

Discussions were also held with Ms Tuxford, Officer in charge of noxious wastes, Kwinana and Alan Bradley, Environmental Officer, Office of Waste Management. They indicated that the Department would approve the disposal of skins by burying if the location was suitable and adequate care was taken. They did however, ask for a copy of the report (which may say something about the level of knowledge of the subject).

21. Australian Meat Exports - Cannon Hill Qld (Mark Greenup)

They kill through the service works at Cannon Hill. Skins numbering in the tens of thousands of NCV skins were disposed of by sending them to the industrial tip at Willawong during the 1992/93 wool recession. They were mainly bare shorn pelts arising from cast for age sheep that had been slaughtered through the works.

The skins are transferred to Winrose Skins who sell the skins for Australian Meat Exports. Winrose is interested in setting up a fellmongery in 1995.

They make the valid point that skins move in relation to the wool market and when the latter is in the doldrums, so to is the skin market, hence the poor markets in the early 1990's. Over the period of the poor market conditions they looked at several ways of rendering the skins but could never find a cost effective way of overcoming the wool problems.

Only skin pieces are put through the rendering plant at this point in time.

22. Blue Ribbon Meat Products Pty Ltd - Launceston, Tasmania (Wayne Jones)

Similar story for the Tasmanian abattoirs. When the wool market was low thousands of skins were taken to the local Council tip for disposal. They tried for some time to put the skin through the rendering plant, but wool fibre in the meal was above acceptable levels thus it had to cease.

Only skin pieces are now put through into meal but damaged skins are still treated as rubbish through the local tip.

The main markets for the skins is now in Melbourne, where PMK purchase their salted skins. A small proportion of long woolled skins are air dried for hand shearing but represent less than 1 per cent of the skins produced. There are no sheep skin tanneries or fellmongeries on the Island.

Environmental Sustainability of Burial of NCV Sheep Skins:

Environmentally sustainable disposal of any waste simply suggests that there should be no significant detrimental impact on the environment from the means and mechanisms involved in the disposal. That is, it needs to be demonstrated that the atmosphere, receiving waters and soils will not be significantly degraded by the addition of the waste material in its raw or subsequently altered forms.

A waste may contain or degrade into substances that pollute receiving waters (surface and ground waters) making them a lower value resource. Examples could include salts and nutrients entering in such quantities that causes concentrations in the main stream to exceed the normal background levels.

Similarly, the disposal of waste on land can degrade the soil if it results in the accumulation of substances that alters its structure making it more vulnerable to erosion and/or making it less able to support normal levels of vegetation. Disposal of wastes on land are generally considered to be environmentally unsustainable where nutrients are added in excess of net rates of uptake by vegetation and normal losses to the environment. Guideline criteria do exist for acceptable loadings of selected substances. Of course, there may be some components of wastes (such as water, and sand, soil or minerals in proportions similar to the receiving soils) that will essentially have no significant impact when disposed on land using appropriate means of dispersal /burial/reclamation.

Gases produced during treatment of the waste or due to degradation following disposal may enter the atmosphere at concentrations that are discernibly odorous and offensive at locations of sensitive land use, or adds to concerns associated with the greenhouse effect or destruction of the ozone layer.

Given the above background reference points, the practice of burying NCV skins in large clay or clay lined pits would generally appear to be environmentally sustainable. There are examples of odour through not covering skins pits regularly, but with effective management this need not be problem. There is no evidence of specific leaching from skin pits, and given

the 'green' nature of the skins in burying them and the knowledge that no harmful chemicals are present on the skin at that time, there does not appear to be any problem apart from how long they will lie in the ground prior to complete break down.

The waste contains a high concentration of organic matter mainly in the form of proteins and fats but as the skins are buried in a "green" state they do not contain substantial concentrations of salt and other chemicals. Although this waste is buried, the overlaying soil was observed to support vegetation.

More important for the industry however is to consider the detrimental impact from high nutrient, salts, etc. loadings on ground water (particularly in locations having sensitive water bodies and permeable soils), the potential for offensive odours to be released, and the costs associated with the reclamation of potentially contaminated burial sites in the longer term (particularly where stabilisation of the waste is incomplete). In all instances, it appears as though the green sheep skins do not leach harmfully into the soils as they do not contain chemicals likely to contaminate. They will however, lay in a clay or clay lined pit for many years as the photographs in the appendices suggest.

3. Establish alternatives open to the processor which give rise to increased value of the skin rather than dumping same.

Connetica International¹⁷ indicated that Australia is the world's largest supplier of fine woolled sheep and lambskins. They noted that in 1992 (AMLC 1993) the composition of the annual slaughter was such that merino sheep accounted for 43 per cent of the annual total. The comment is made however that despite the fine woolled nature of merino skins the NCV skins are invariably from bare shorn merinos. The skins involved in the NCV problem are by nature at the lower end of the skin hierarchy and to add value to them is not without its difficulties.

More recently, bare shorn pelts have become of value as the markets for same have built up in the Commonwealth of Independent States where they are being used as tanned linings in footwear¹⁸ and in several Asian countries such as China. The long term value of these markets

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¹⁸

Marketing Strategies For Australia's Processed Sheepskin Industry., Connetica International, December 1993, pp12.
Hide & Skins P/L., Sydney. Personal communications with Peter Liebmann.

is not clear and is obviously tied up with their relative economic and market conditions. Its more likely these markets will wax and wane according to market conditions, however any small slow down in economic conditions in these countries will see pressure applied to marginal operations such as processing bare shorn sheep skins.

Current market conditions should not be taken as a long term guide to the relative health of the bare shorn sheep skin market. It has a long history of peaks and troughs and there is nothing on the horizon to suggest that its likely to change.

Higher Technology Uses :

Gelatine : The Department of Agriculture, Western Australia advised ... "In 1990/91 Australia imported 1.9 million kilograms of food grade gelatine at an average cost of \$4.85/kg and a further 165 thousand kilograms of inedible (technical and photographic) grade gelatine at an average price of \$13.75/kg. Currently, there is no gelatine producer operating in this country. Early in the sheepskins project (CEP), a sample of air dried acetate fellmongered pelts were sent to Davis Gelatine for evaluation. The Chief Chemist at Davis Gelatine, then Australia's only gelatine manufacturer, concluded that the '...Gelatine extracted from dry sheepskins exhibited excellent physical characteristics... the gelatine yield being 28% is comparable to dry cattle hide material... all these observations indicate that dry sheepskin is a viable source for gelatine manufacture.'..."

The problem with the conversion of NCV skins to gelatine is that the internal logic of the operation would be enhanced by using long woolled skins where the recovery of the wool would more than pay for the production of the pelt in order to re-process the pelt into gelatine. Its most unlikely that a process manufacturer would establish in Australia with the express purpose of using low quality skins with little or no by-product (wool) value for the sole purpose of using gelatine. In addition, the processes of acetate fellmongering and gelatine production are virtually mutually exclusive because the pelts are too valuable for gelatine production.

Collagen : The exact argument applies for the production of soluble collagen. Whilst the yields are lower and the proceeds from the sale of the soluble collagen is higher, using NCV skins as the raw material does not appear to be sensible given the ample supply of better, more valuable skins available.

The problem with the high technology approaches is that it lacks commercial common sense to use NCV skins as the starting point. Fellmongering is estimated to cost about \$3.00 per skin. If one assumes a buying price of \$5 per skin plus say another \$4 in transport and other costs, the total expense of fellmongering a skin is \$12. If there are 5 kilograms of wool on the skin at \$3.50/kg plus a pickled pelt value of say \$5, total income is \$22.50, thus there is a potential profit of \$10.50 per skin. By only using NCV skins, the purchase price of the raw material falls to say \$1.00 but total cost is still \$8.00 per skin. By definition, a bare shorn skin does not have commercial quantities of wool thus income falls by \$17.50, yet costs only fell by \$4 per skin. Another important issue is that it is doubtful that investors would establish a plant given the wide fluctuations in the supply of cheap skins.

Most rational investors would choose a path that maximises income and profit and these processes do not seem to provide that opportunity.

Lower Technology Uses :

Fertiliser :

The addition of value to low quality skins can come in a number of ways, not the least being used as a basis for fertiliser. There are a couple of examples of innovation by processors in the disposal of NCV skins which shed light on the best method of disposal.

The first was the method undertaken by Shark Lake Meat Works - Esperance (Alan Read)

In the past NCV skins were buried on the site but for the last 4 years they have had only a limited number of NCV skins. *The limited number they do get are used to recover degraded or denuded land. The skins are laid 3 to 4 deep on the bare earth, covered with about 10*

centimetres of sheep manure ex the yards then covered with earth to a depth of 7.5 to 10 cm. The earth is then seeded. The areas so treated recover quickly and there is no odour problem.

The abattoir have no problems with the local shire council who are aware of their activity.

The second is the Metro Meat Ltd - Murray Bridge (Kim Jackson). The company was experimenting with composting of skin, paunch, rejected offal and manures under the guidance of the Shire and through a private contractor over the past 6 months. The contractor takes the abattoir dumped unsalted skins and skin pieces mixes them with paunch contents and animal manures (the experimental ratio is approximately 1 part skins to 2 parts paunch/manure mixture) using a bobcat type of vehicle. This mixture, it is said, takes 4 weeks to form a compost. The contamination could be controlled and lack of moisture can slow the process. The local government's comment was that the process suitability required adequate quality control as to the contents ratio and type. The process was halted due to the lack of raw materials.

The above two examples suggest that shallow layers of skins near the surface of the soil, mixed with other materials such as manure or paunch material will decompose fairly quickly. This can be contrasted with burying in large layers within deep pits and over a metre of soil over the top. Indications are that the decomposing process is very slow, requiring many years to successfully break down.

To make the product more user friendly, such as cutting the skin into small pieces, is also technically possible but fairly difficult. The green skin will not cut easily and tends to wrap around cutting blades to the point where machinery is easily jammed. McPhee Meat Packing P/L at Wodonga reported that they had done some work in this area but that the process was difficult.

It might be possible to snap freeze the skin and crush it but the capital costs might outweigh the potential advantage. The plate freezer technology recently advocated to temporarily freeze the fleshy part of the skin for short term preservation is a major step forward in removing the need for salting, especially for local fellmongerers. Criticisms were noted during visits to some

abattoirs that had used the technology, the main objection being that it needed to be a more automated system. The Consultants were advised¹⁹ that an automated system could be basically purchased "off the shelf" using freezing technology used in the snap frozen food industries where the product is placed on an endless belt, passed through a cascade tunnel where blasts of extremely cold air (e.g. -80c) is forced down onto the product.

If this machinery was introduced into the abattoirs, then it could be that NCV skins could pass through the freezing mechanism and into a simple crusher. The efficacy of the system would of course, need further research and development. The outcome of such a process would be shredded sheep skin that could more easily be dispersed. *The Consultants recommend some small trials in this technology to ascertain its value to the fellmongering industry and its applicability to handling NCV skins.*

Meat Meal Production :

A number of abattoirs put small quantities of NCV material through the rendering process. As wool fibre can reduce the standard of the meat meal, there are limits to the amount of fibre acceptable in the meal. Nevertheless, given a reduction in the amount of NCV skins coming forward through education of farmers and the CSIRO LIME process recently developed by CSIRO, then it may be possible that more of the NCV skin material could go through the rendering process into meat meal. In New Zealand, a process has been developed which removes the wool prior to rendering. Its a hot alkali pre-treatment process which is primarily used for skin pieces.

Storage of NCV skins during recessionary times:

This practice was used by McPhee Meat Packing Pty Ltd at Wodonga where up to 100,000 skins were salted and stored pending price increases in bare shorn pelts. There is a cost associated with the storage, for example salting would add approximately \$1.30 to the value of the skin. Bearing in mind dumping costs 30 to 50 cents per skin, there is cash outflow of around 80 cents to \$1.00 during the recessionary times. However when the market turns, it should be possible to recover the total costs, including storage; see Table 2.

¹⁹

B & E Airconditioning, Dandenong 039 794 8144

Policy Settings :

The problem of NCV skins coming forward into the market will continue as the markets for such skins goes through quite normal business cycles. The facts are that Australia tends to export most skins as salted greens and despite the fact that there is increasing interest in fellmongering in Australia, the predominant feature of exporting the raw material for others to process is likely to remain. Even if an early stage industry was to successfully develop in fellmongering, it will only make a marginal difference to the NCV problem. By definition, bare shorn pelts, indeed those pelts with 8 to 12 weeks growth of wool will always be dependent upon the state of the skin market, and not the wool market, as to whether it is practical to further process these skins.

The skin market is very much dependent upon the leather markets and for the most part, Australia does not have a merino skin leather industry. It has quite a sophisticated mature industry in wool-on skins, but in the main these do not include a vast number of merino sheep skins. They are mainly lamb, both crossbred and merino, and crossbred sheep skins. Added to this problem is that merino sheep skins are by-products of a by-product (mutton). When a wool producer comes to make a decision with regard to his cast for age sheep, its very difficult to assess the relative worth of the skin viz the mutton as the animal is sold on a live weight or per head basis. Figures 11 and 12 attest to the wide perception of relative values held by farmers.

Figure 11 : Farmer Perception of Full Wool Value of Merino Sheep Skin.

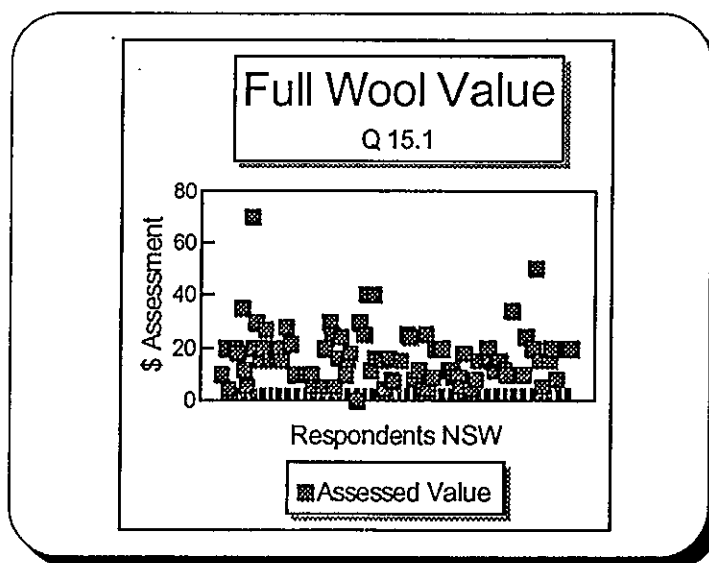
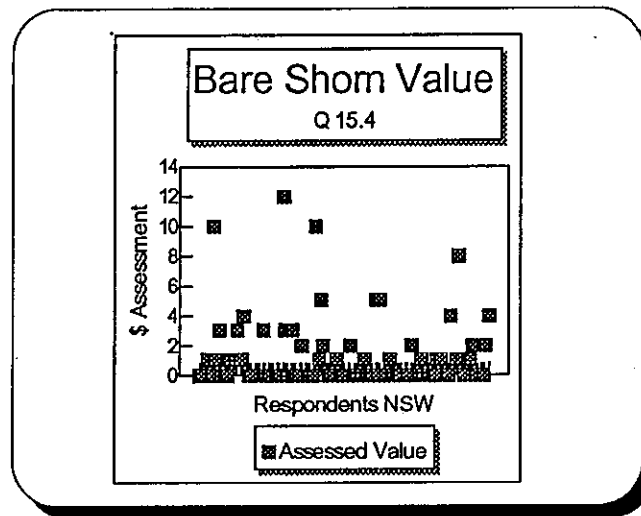


Figure 12 : Farmer Perception of Bare Shorn Value of Merino Sheep Skin.



Similarly our research has indicated that, apart from a few exceptions (Fletchers, Gastricums), most processors see the merino sheep skin as a by-product that one simply sells onto the skin tender markets. Allied to this is another fact that the skin traders are very well entrenched in the industry and have very sophisticated information networks, albeit based on shipping the raw material overseas for other countries to process. They have been marketing the Australian merino sheep skin for over 100 years and, as would be expected, know the market intimately. From an industry point of view however, Australia's trade position, indeed the farmers terms of trade, would be very much enhanced if a suitable early to late stage leather processing industry could be truly established in Australia. *As the number of skins coming forward each year can alter quite markedly, a healthy fellmongering, tanning and leather industry in Australia, would probably ease the numbers of skins being dumped during surplus supply seasons.*

The benefits of establishing a larger leather industry in Australia, along side the wool-on tanning industry is that processors and/or farmers would have greater competition internally for the sheep skins thus market signals would become more open and louder where growers could better understand the value of the by-product.

From a commercial view point however, the merino sheep skin industry is saddled with a perception that its uniqueness is a negative aspect and thus of low value. Australian merino sheep skins have been turned into leather for a variety of purposes for probably as long as

there has been a sheep industry in Australia, although the manufacturing process has been occurring in Mazamet, France and other like centres. They have developed markets for suitable skins/leather but the signals from this part of the industry are lost to both the wool grower and to a lesser extent the meat processor.

The whole basis of any successful industry is a common language that every one understands. One can see it coming into the meat industry, its in the wool industry, indeed its in most industries except for the sheep skin industry in Australia. New Zealand recognised this problem many years ago and has set up a universal language to describe the New Zealand Sheep skin and pelt industries. Australia needs to do the same if it is to see greater investment in the domestic markets.

As the amount of skins being processed through Australian fellmongeries increases, there is an urgent need to address the question of industry descriptions for both the sheep skin and the pickled pelt. The sooner this can happen the better.

Summary :

As the skin market waxed and waned over the period of the early 1990's, meat processors have come up with ways to deal with the problem of NCV skins. Some bury them, others preserve and store and still others render small quantities through meat meal. This Study has looked at various methods of environmentally sustainable dumping and concluded the most appropriate as being buried in thin layers in shallow pits, mixed with other organic matter to speed up the process of decomposition. However, it also concludes that its possible and desirable that NCV skins be reduced, as far as practical, at the source, the major one being bare shorn cast for age ewes. It is felt that a significant number of farmers could be convinced to allow wool to grow back onto the pelts prior to selling the sheep into the mutton markets. This would not be a compulsory withholding period but a recommendation to producers from the Meat Research Corporation, highlighting the value of allowing wool to regrow and the cost to the industry of ignoring the problem of NCV sheep skins.

However, more importantly there is a need to address the larger problem of equity and market signals reaching the producer. The Australian sheep skin industry has quite a number of middle men, all attempting to make a margin, on the skin before it reaches the processor. One could argue that a reduction in the length of the pipeline would see immediate advantages flowing through to the processor and given any sort of competition at the processor level, it will flow back to the producer.

From an environmental point of view, it is the Consultant's considered view that the dumping of large numbers of sheep skins is not desirable but current practices do not suggest that there is any environmental catastrophe waiting to happen. If anything, the skins once buried in large deep clay or clay lined pits will lie inert in the ground for many years, slowly degrading over time, upwards of 20 years, but providing the skins are buried in a green state without chemical additives, there should not be a problem of degradation of the land and its immediate environment.