

finalreport

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Lamb Feedlot Stocktake

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Abstract

The Australian lamb industry is currently experiencing record export growth. Tonnages exported have increased by 27% to 141,500 tonnes. The value of these exports has risen correspondingly and is now valued at \$760million. At the same time, the industry has been maintaining a strong domestic market. In order to meet this demand, Australian producers have been finishing increasing numbers of lambs on grain based diets.

Meat & Livestock Australia (MLA) has initiated several projects in the area of lamb feedlotting to investigate the current status of industry knowledge and information.

The "Lamb Feedlot Stocktake" is the first of these projects that will combine to provide detailed information about the industry. This information will assist MLA in determining the direction for strategic investments in R&D to help producers maximise efficiencies as well as to understand and manage environmental and animal health issues.

Producers known to be feeding lambs were surveyed across five states and thirty eight provided detailed information about the physical components of their feeding systems and management programs.

MLA is grateful for the cooperation of producers and service providers, many of whom supplied industry contacts to facilitate the instigation of this stocktake.



Executive Summary

The "Lamb Feedlot Stocktake" found that on average, feedlots had the capacity for 4,000 lambs and turned-off one and a half lots per year but there was a very wide range from 150 to > 15,000. The majority of operations surveyed were described as cropping/livestock, and specialist prime lamb production enterprises.

Most operations were specialist feedlots, designed specifically for lamb finishing, and feedlot pads were generally of the local natural material.

A number of sources have assisted producers in site design and planning and the majority of producers have used their own research and observations in the development process.

Lamb supply and shortages in labour, finance and infrastructure were cited as the major limiting factors to capacity.

In most cases, yard sizes were greater than $200m^2$ and pen density ranged from $2m^2$ to more than $5m^2$ per head (it was assumed that "yard" referred to pen).

Lambs on entry ranged between 30-40 kg live weight (lwt) with target finishing weights of 45-55 kg lwt. The lambs appear to have been weighed either on both entry and exit or at more frequent intervals.

The majority of feedlotters tested their feed supplies for nutritive value.

The majority get external advice from a range of sources but a high proportion do their own research and observation. Most feedlot lambs were reported to convert feed to weight gain at a ratio of between 5:1 and 7:1 but some producers indicated a more efficient rate of gain which may provide opportunity for further research. Most lambs were on-feed for more than 5 weeks.

The larger operators marketed more than 70% of their lambs over the hooks and all respondents indicated that more than 50% of their lambs were forward contracted with this proportion rising to 70% for the larger operators.

Gross margins were calculated by 70% of the operators however only a small proportion indicated they used feed budget or other software for their feedlot.

The smaller operators indicated they spent up to 4 hours per day in the feedlot, whereas the larger operators spent up to double this amount of time.

Shade and shelter was provided from a wide range of options. The vast majority of shade and shelter provided for lambs in feedlots was from natural vegetation. A small proportion of feedlotters provided artificial shade, although, a similar proportion had not provided any shade at all.



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The vast majority of lambs in feedlots have access to ad-lib grain and hay via self feeders. Less than 40% supply feed in open troughs and less than 20% of respondents indicated that they had an automated feed delivery system.

Throughout the survey, a diverse range of responses was received reflecting a wide range of approaches. The range of responses did not appear to have any direct correlation with either the size or location of the feedlot.

This "Lamb Feedlot Stocktake" encapsulates a snapshot of the current state of the lamb feedlot finishing industry in Australia. In so doing, it provides a tool for future industry benchmarking and a basis on which MLA can build decisions about further R&D investment.



Background

The Australian sheep industry is currently in a very strong position. Despite record low numbers of sheep in Australia and the worst drought for 100 years, domestic consumption has been maintained and exports have increased. The price that producers have received for their product over the last 3 years has been close to double long term averages.

Exporters and domestic retailers have increased their demand for consistent lamb supply all year round. This factor, in combination with the recent drought has resulted in an increasing interest in intensive lamb finishing operations. The current feedlot industry consists of a broad range of operators, from pen and paddock feeders, through to large automated, undercover dedicated feedlots.

As interest in intensive finishing and the industry's expectations of continued success grows, the efficiency, environmental and animal welfare aspects of intensive finishing systems are likely to come under closer scrutiny. In order to be proactive, MLA convened an R&D Workshop in Sydney on the 17th August 2005 to develop a strategy to address the issues in a methodical way.

Three priorities were initiated:

- 1. A complete stocktake of the industry (this document)
- 2. Enterprise economic analysis including an evaluation of feed budgeting and formulation tools
- 3. A review of the literature to identify best practice for production feeding of lambs

According to the MLA lamb survey (McAlister & Giason, 2005) 9.2% of the 22.6 million lambs to be turned off nationally between autumn 2005 and autumn 2006 were expected to be sold out of a feedlot.



Project Objectives

- 1. Describe the extent and structure of the intensive lamb feedlotting industry in Australia in terms of:
 - overall numbers;
 - a regional analysis that identifies:
 - a. size of operation break-up; and,
 - b. commercial versus opportunity undertakings.
- 2. Document the current state of the industry in the following areas:
 - design of facilities;
 - use of indoor and outdoor facilities;
 - provision of shade;
 - use of climate control systems; and,
 - use of the various feeding systems (eg. ad lib and continuous) available.
- 3. Document industry's current management practices in all areas including trough space and pen density, and identify industry experience that needs to be taken into account when developing Best Management Practice (BMP) guidelines.
- 4. Document current industry practices and describe what is known about pad and yard design in relation to environmental outcomes, with a view to establishing current BMP.
- 5. Document current industry practices and identify the best practice feed formulation practices.
- 6. Describe current practice in backgrounding and acidosis prevention.
- 7. Assess use of currently available decision support programs.
- 8. Assess use of currently available environment and welfare guidelines.



Methodology

MLA contracted Gerald Martin, Agresults Pty Ltd and Aaron Giason (university trainee) to:

Develop and conduct the "Lamb Feedlot Stocktake" by:

- Consulting with an industry expert panel on appropriate questions to ensure a comprehensive stocktake was made of the industry.
- Develop an industry database of known lamb feedlotters by consulting as many service providers as possible.
- Road test the questionnaire.
- Determine the most appropriate format to engage participants, eg. phone or fax survey, email.
- Survey as many feedlotters as possible.
- Tabulate, graph and report the findings.

The survey was undertaken during November and December (2005), a very busy period for producers and hence there was a slightly higher decline in participation and more follow up work required to get the responses. July to October and March to May may have been better periods for such a survey.

An initial consolidation of 20 findings was presented to the 34 participants of the Australian Lamb Finishers Scoping Workshops held in Adelaide, SA on 30/31 January, 2006. Participants were invited to provide comment and further interpretation of the findings.

This report has been compiled by Ann Wallace (Productive Nutrition Pty Ltd), Adelaide. Neither the project team nor Productive Nutrition Pty Ltd has attempted to interpret or editorialise the findings of the survey. The survey responses are provided with some brief explanations, a table of data, which is also represented in graphically. Many questions allowed participants to select more than one option, which in some cases resulted in totals of greater than 100%.



Survey Responses

General Scale

Answers to questions 1-8



Source: Feedlot Esperance WA (Productive Nutrition Pty Ltd)



Q1 What state/region is the feedlot situated in?

The majority of the participants surveyed in the stocktake were based in Western Australia, South Australia and New South Wales with input from a smaller number of feedlots in Victoria and Queensland. Responses were received from a total of 38 feedlots.



State	Feedlotting Stocktake Participants
WA	13
SA	10
NSW	8
Vic	4
QLD	3



Feedlot categorisation and distribution

Feedlotters who participated in the survey were grouped into three categories according to the number of lambs produced per year. The number of lambs turned off each year ranged from 150 to 80,000 lambs. There were more small feedlots included in the survey and the graph below represents the spread of respondents and their relative representation. The categories for this report have been established as follows:

- Small: <4,000 lambs per annum
- Medium: 4,000 15,000 lambs per annum
- Large: 15,000 lambs or more per annum



Feedlot size	No of feedlots per category	Statistical proportion for 1 feedlot in its category
Small (<4,000 lambs pa)	24	4%
Medium (4,000 - 15,000 lambs pa)	8	12%
Large (15,000 lambs or more pa)	6	17%



Q2 What size property is the feedlot built on?

The size of properties sampled indicated that those with opportunity lamb finishing had larger properties, with the feedlot complementing other enterprises.



	Property Size (Ha)
Small (<4,000 lambs pa)	4,561
Medium (4,000 - 15,000 lambs pa)	822
Large (15,000 lambs or more pa)	2,705



Q3 What type of enterprise mix do you have?

The majority of properties with feedlots that participated in the MLA survey were mixed cropping and livestock enterprises. Interestingly, medium sized producers indicated more frequently that they were specialised prime lamb/feedlot operations and were less inclined to describe themselves as cropping and livestock operations.



Feedlot size	Specialised Prime Lamb/Feedlot	Cropping & Livestock	Grazier
Small (<4,000 lambs pa)	-	86%	14%
Medium (4,000 - 15,000 lambs pa)	57%	43%	29%
Large (15,000 lambs or more pa)	33%	67%	17%



Q4 How many lambs are turned off from the feedlot per financial year?

The number of lambs turned off from small feedlots per financial year ranged from 150 to 3,500, with an average turnoff of 1,525. Medium sized feedlots turned off between 5,000 and 12,000 lambs per financial year, with an average turnoff of 7,728 lambs, while large feedlots turned off between 15,000 and 80,000 lambs per financial year with an average of 30,857 lambs.

Q5 What is the maximum capacity of your feedlot?

The maximum capacity of the smaller feedlots ranged from 280 to 10,000 lambs, the average capacity being 1,770 lambs. Medium sized feedlots' maximum capacity ranged from 1,000 to 26,100 with an average capacity of 2,900 lambs, while large feedlots' maximum capacity was between 2,500 and 81,500 lambs with an average capacity of 11,643 lambs.



	Average Turnoff	Average Maximum Capacity
Small (<4,000 lambs pa)	1,525	1,770
Medium (4,000 - 15,000 lambs pa)	7,278	2,900
Large (15,000 lambs or more pa)	30,857	11,643



Utilisation rates

More than half of the smaller feedlotters responding to this survey had feedlot utilisation rates of 100% or more. Utilisation rates of greater than 100% indicates that more than one cycle of lambs have been turned off in one year.

Small feedlotters utilisation rates ranged from 30% to 500%, while medium feedlotters ranged from 160% to 550% and large feedlotters from 188% to 640%. The median utilisation rate for both medium and large feedlotters was just over 250%.



	Average Utilisation Rate
Small (<4,000 lambs pa)	135%
Medium (4,000 - 15,000 lambs pa)	311%
Large (15,000 lambs or more pa)	331%



Q6 What is the major factor limiting this capacity?

Lamb supply was a major limiting factor to fully utilising existing capacity in feedlots. The survey indicates that this was especially true for the small (particularly those with 100% or higher utilisation rates) and larger feedlots, although a lack of resources, including labour, finance, and/or infrastructure were outlined as equally significant factors in limiting capacity for all the feedlots. Most feedlotters who indicated other factors limiting capacity, cited profit as the other factor.



	Lamb Supply	Regulations	Feed Supply	Resources (labour, finance, land, infrastructure)	Other
Small (<4,000 lambs pa)	43%	-	9%	43%	13%
Medium (4,000 - 15,000 lambs pa)	29%	-	14%	43%	29%
Large (15,000 lambs or more pa)	50%	-	17%	33%	17%



Q7 What is your season/s of operations?

The statistics indicate that the larger the feedlot, the longer the time the feedlot operates throughout the year. The statistics also show that spring is the season where the least feedlotting activity occurs and autumn has the most activity.

Small Feedlots



Medium Feedlots



Large Feedlots



All Feedlots – by season



Feedlot Size	Summer	Summer /Autumn	Summer /Autumn /Winter	Autumn	Autumn/ Winter	Autumn/ Winter/ Spring	Winter	Winter/ Spring	Spring	All year
Small	4%	39%	-	13%	17%	-	9%	4%	4%	9%
Medium	-	25%	25%	-	13%	-	-	-	-	38%
Large	-	-	50%	-	-	25%	-	-	-	25%



Q8 What is your average annual rainfall?

Over half of the large feedlots were located in medium to high rainfall zones, but this data may be skewed due to the relatively low number of large feedlots included in the survey. The majority of small to medium feedlots were located in lower rainfall zones where the ability to paddock finish lambs is generally limited.

The higher number of large feedlots located in higher rainfall zones is probably also more an indication of all year round feeding operations rather than opportunity feedlotting.



	< 500mm	500 to 650mm	> 650mm
Small (<4,000 lambs pa)	83%	17%	-
Medium (4,000 - 15,000 lambs pa)	50%	25%	25%
Large (15,000 lambs or more pa)	17%	50%	33%



Survey Responses

Site Design

Answers to questions 9-23



Source: Feedlot mid North SA (Productive Nutrition Pty Ltd)



Q9 Have you any approvals [or sought any] from local government or other authorities?

There is general industry awareness of EPA requirements in other intensive animal operations, so it is not surprising that the medium to large feedlotters have investigated approvals from various authorities. Most small feedlotters had not sought approval from any authority to run their feedlotting operations. Responses to this question did not appear to be biased by state.



	Local	State DPI	State Planning/ Other	Federal	NO
Small (<4,000 lambs pa)	9%	4%	9%	-	91%
Medium (4,000 - 15,000 lambs pa)	50%	38%	13%	-	25%
Large (15,000 lambs or more pa)	50%	50%	-	-	33%



Q10 How would you describe your feedlot yard design?

All the large feedlots and a high percentage of the medium feedlots, were designed as a permanent and dedicated lamb finishing facility, whereas the majority of the small feedlots utilised existing infrastructure to create a permanent or semi-permanent feedlot facility. A very small percentage of the industry has invested in shedded facilities.



	Outdoor with semi permanent yards	Outdoor with permanent yards utilizing existing infrastructure	Outdoor specialist feedlot yards, designed for lamb finishing	Indoor feedlot shed
Small (<4,000 lambs pa)	13%	52%	39%	-
Medium (4,000 - 15,000 lambs pa)	25%	13%	63%	-
Large (15,000 lambs or more pa)	-	-	100%	17%



Q11 What soil type has the feedlot been built on?

This question may not have been well interpreted by the participants surveyed. Soil type does not have the same relevance to feedlot sheds as it does to those feeding lambs outside; however, the majority of the medium to large feedlots were built on sand or loam base. Smaller feedlots have been built across all soil types. 13% of the medium feedlots and 9% of small feedlots were based on artificial material.



	Sand	Loam	Sandy/clay/loam	Clay	Artificial
Small (<4,000 lambs pa)	17%	22%	39%	13%	9%
Medium (4,000 - 15,000 lambs pa)	63%	25%	13%	-	13%
Large (15,000 lambs or more pa)	17%	67%	17%	33%	-



Q12 How have you designed the feedlot floor?

The vast majority of feedlots were situated on a natural soil base with 38% of medium and 33% of large feedlotters having graded and compacted the soil.

Only a small percentage of small and medium feedlots had a straw and clay base.



	Natural	Graded & compacted	Straw & clay	Synthetic
Small (<4,000 lambs pa)	92%	-	8%	-
Medium (4,000 - 15,000 lambs pa)	63%	38%	-	-
Large (15,000 lambs or more pa)	44%	33%	11%	11%



Q13 What surface is surrounding the heavy traffic areas (water and feed points)?

Most of the small and medium feedlots had not applied any particular soil treatment to the heavy traffic areas around the feed and watering points. Most large feedlots, and to a lesser extent, the medium and small feedlots, had compacted and graded the soil in these areas, with one third of the large feedlots having applied a synthetic treatment to these areas, such as a concrete base. The smaller feedlots had a lower investment in more permanent and costly additions to infrastructure.



	Natural	Graded & compacted	Straw & clay	Synthetic
Small (<4,000 lambs pa)	61%	26%	9%	4%
Medium (4,000 - 15,000 lambs pa)	50%	38%	-	13%
Large (15,000 lambs or more pa)	17%	67%	17%	33%



Q14 What is the slope of your feedlot pad away from the feeding area? and

Q15 What is the slope of your feedlot?

The direction of the slope away from the feedlot pad and the position of the feedlot pad within the feedlot can be critical factors in facilitating runoff and minimising erosion.

Due to the numerous factors involved, it was difficult to establish clear information regarding feedlot pads from the survey, however, the majority of feedlots positioned their feedlot pads within the same slope as the feedlot.

The survey data indicates that the majority of the small and large feedlots have been established on land with a small incline whereas at least half the medium sized feedlots are built on land with a greater degree of slope and hence drainage. A small percentage of feedlots surveyed in this stocktake have been built on flat land. (To visually differentiate between flat and <1% would be virtually impossible.)



	flat	< 1%	1-4%	5-8%	> 9%	Don't know
Small (<4,000 lambs pa)	9%	9%	48%	26%	4%	4%
Medium (4,000 - 15,000 lambs pa)	13%	-	25%	50%	13%	-
Large (15,000 lambs or more pa)	17%	17%	67%	33%	-	-



Q16 Who has helped you develop the site plan/ building design?

The majority of feedlotters have developed their feedlot design from information gained by doing their own research or trials. Some feedlotters have combined their own research with information from consultants and/or the Department of Agriculture or MLA. Of the small and medium feedlotters, approximately 25% have sought assistance from the Department of Agriculture or MLA. 25% of medium sized feedlots have been constructed using information from other producers.



	DPI/ or MLA publications/ resources	Independent Consultants	Other publications / web	Own research/ trials	Other producers
Small (<4,000 lambs pa)	23%	18%	9%	86%	14%
Medium (4,000 - 15,000 lambs pa)	25%	13%	13%	75%	25%
Large (15,000 lambs or more pa)	17%	-	-	100%	-



Q17 Do you reuse effluent / manure?

As manure handling and value adding can be an expensive process involving additional infrastructure, it is not surprising that the large feedlots were more focused on this area of their business. Having more manure to handle also requires them to be more proactive in this area. Only 23%-25% of the small and medium feedlotters were applying manure back on property.



	No	Yes, on property	Yes, sold	Yes, value added
Small (<4,000 lambs pa)	77%	23%	-	-
Medium (4,000 - 15,000 lambs pa)	63%	25%	13%	-
Large (15,000 lambs or more pa)	17%	83%	33%	17%



Q18 What shelter is provided for the lambs?

18%, 25% and 33% of small, medium and large feedlotters respectively do not supply shelter for their lambs, although in more than half the small and medium feedlots the lambs have access to trees. The provision of shelter in the larger operations is spread evenly across the options of trees, artificial shade and sheds. Most feedlotters supply more than one form of shelter.



	None	Aspect	Trees	Artificial shade	Shed	Open shed
Small (<4,000 lambs pa)	18%	9%	64%	27%	14%	-
Medium (4,000 - 15,000 lambs pa)	25%	13%	50%	13%	-	13%
Large (15,000 lambs or more pa)	33%	-	33%	33%	33%	-



Q19 What size are your yards?

A clear majority of feedlots have a yard size of $>200m^2$. 20% of the large feedlots indicated they had a yard size of less than $80m^2$.



	< 80m ²	80 to 100m ²	100 to 200m ²	> 200m ²
Small (<4,000 lambs pa)	9%	9%	14%	68%
Medium (4,000 - 15,000 lambs pa)	13%	13%	25%	50%
Large (15,000 lambs or more pa)	20%	-	-	80%



Q20 What is your average pen density?

The majority of feedlots who responded to this question allow a pen stocking density of $2m^2$ to $>5m^2$ per head.

The next largest proportion of feedlotters allow more than $5m^2$ per head, while approximately 20% of small and large feedlots have high stocking densities of $0.5-1.0m^2$ per head and 10%, 14% and 20% of small, medium and large feedlots respectively have density rates of $1.0-2.0m^2$ per head.



	< 0.5m ²	0.5 - 1.0m ²	1.0 - 2.0m ²	2.0 - 5.0m ²	> 5m² per
		per head	per head	per head	head
Small (<4,000 lambs pa)	-	19%	10%	43%	29%
Medium (4,000 - 15,000 lambs pa)	-	-	14%	43%	43%
Large (15,000 lambs or more pa)	-	20%	20%	20%	40%



Q21 What feeding system do you use?

The most common feeding system reported across all sectors of the stocktake included ad-lib access to feed via self-feeders for both grain and hay. Approximately one third of small and medium feedlotters supplied feed via troughs, with only 20% of large feedlots using this feed delivery system. Only 5% of small feedlots had an automated feed delivery system with 13% and 20% of medium to large feedlots respectively utilising a fully automated system.



	Feed on the ground	Self feeders, ad-lib grain/hay	Delivery in troughs	Semi automated feed delivery	Fully automated delivery
Small (<4,000 lambs pa)	-	82%	32%	5%	5%
Medium (4,000 - 15,000 lambs pa)	-	75%	38%	-	13%
Large (15,000 lambs or more pa)	-	100%	20%	-	20%



Q22 How often are pens cleaned?

Interestingly nearly 40% of the medium sized feedlots are cleaned twice per year and another 40% are never cleaned out. The large feedlots are most commonly cleaned out twice a year and the small feedlots once per year. A relatively high percentage of pens are never cleaned out, which may be a factor of soil type and rainfall zone.



	Each fill	Twice a year	Annually	Biannually	Never
Small (<4,000 lambs pa)	18%	5%	32%	14%	32%
Medium (4,000 - 15,000 lambs pa)	13%	38%	13%	-	38%
Large (15,000 lambs or more pa)	20%	40%	20%	20%	20%



Q23 How often do you clean the water troughs?

As there is a strong relationship between water quality and feed intake, it was not surprising to find that the majority of feedlot water troughs were cleaned out frequently.

Only 1 medium size feedlotter cleaned water troughs once per fortnight, which is unusual in their lack of frequency, but may reflect the location of the water source to the feeding point.



	More than once per day	2 to 3 times per week	Once per fortnight
Small (<4,000 lambs pa)	60%	40%	-
Medium (4,000 - 15,000 lambs pa)	50%	38%	13%
Large (15,000 lambs or more pa)	50%	50%	-





Survey Responses

Supply

Answers to questions 24-32



Source: Feedlot mid North SA (Productive Nutrition Pty Ltd)


Q24 What breed of lambs do you source for feedlot entry?

The data indicates that a high proportion of large and small feedlotters source first cross lambs to finish, with the large producers also specifically targeting 2nd cross lambs. Large feedlot operations also source Merino lambs which appeared to be a less preferred option for the smaller feedlots. The medium sized feedlots sourced mainly cross bred lambs but sourced any type of lamb to maintain turnover.



	1st	2nd	Merino	Other pure bred	Any
Small (<4,000 lambs pa)	82%	9%	36%	5%	9%
Medium (4,000 - 15,000 lambs pa)	38%	25%	13%	-	38%
Large (15,000 lambs or more pa)	100%	100%	83%	-	-



Q25 What proportion of feedlot lambs are bred and finished on the same property?

All of the small feedlots were established to primarily feed lambs bred on the property with a small percentage sourced off-farm. Approximately one third of medium and large feedlotters purchased all their lambs off-farm, with the remaining two thirds of the large feedlots relying on an even spread of lambs being home bred and bought in. Half of the medium sized feedlots sourced up to half their lambs off farm.



	Nil	< 20%	20 - 50%	50 - 70%	70 - 100%
Small (<4,000 lambs pa)	-	5%	18%	9%	68%
Medium (4,000 - 15,000 lambs pa)	38%	-	50%	-	13%
Large (15,000 lambs or more pa)	33%	17%	17%	17%	17%



Q26 What proportion of lambs are sourced on farm/contracted/direct (includes Auctions plus)?

Although the majority of the small feedlotters finish their own lambs, of those lambs bought in only a small percentage are purchased directly from another producer, and not via the saleyards.

Most of the large feedlotters purchase up to half their lambs directly from other producers whereas less than 20% of lambs supplied to medium sized feedlots are sourced directly.



	Nil	< 20%	20 - 50%	50 - 70%	70 - 100%
Small (<4,000 lambs pa)	41%	14%	18%	9%	18%
Medium (4,000 - 15,000 lambs pa)	-	63%	25%	-	13%
Large (15,000 lambs or more pa)	-	-	80%	-	20%



Q27 What proportion of lambs are sourced from saleyards?

Up to 50% of lambs supplied to 60% of the large feedlots surveyed are sourced from saleyards, with the remaining 40% of large feedlots buying in less than 20% of their lambs from this source.

25% of medium sized feedlots do not source any lambs from the saleyards whereas the remainder source from 20-100% of their lambs from these facilities.

A high percentage (64%) of small feedlots do not source lambs from saleyards at all, which may be partly due to the fact they breed and finish their own lambs. However, a very small percentage of small feedlots finish lambs mainly sourced from saleyards.



	Nil	< 20%	20 - 50%	50 - 70%	70 - 100%
Small (<4,000 lambs pa)	64%	23%	9%	-	5%
Medium (4,000 - 15,000 lambs pa)	25%	-	25%	25%	25%
Large (15,000 lambs or more pa)	-	40%	60%	-	-



Q28 How far do you travel to source lambs?

All the large feedlots included in this survey sourced lambs that were further away than 300 km from their feedlots. Lamb supply to the medium sized feedlots was generally sourced from within 100-300 kms, with 25% still to come from a distance of > 300 km.

The majority of small feedlots received lambs from within a 100 km radius. 11 feedlotters did not provide a response to this question and this may be because these feedlotters were finishing their own lambs and therefore not travelling at all.



	100 km radius	200 km radius	300 km radius	> 300 km
Small (<4,000 lambs pa)	42%	25%	25%	8%
Medium (4,000 - 15,000 lambs pa)	13%	25%	38%	25%
Large (15,000 lambs or more pa)	-	-	20%	100%



Q29 What is the average live weight that you source lambs at?

The data indicates that the majority of lamb finishers across all categories aim to source lambs into the feedlot at between 30-35 kgs live weight, and to a lesser degree at between 35-40 kgs live weight.

15% of small producers "source" lambs at between 20-30 kg live weight which may reflect the lower half of their lamb drop; the larger feedlots sourcing lambs in this weight range may be as a result of contracting an entire drop of lambs.



	< 20 kg lwt	20 - 30 kg lwt	30 - 35 kg lwt	35 - 40 kg lwt	> 40kg lwt
Small (<4,000 lambs pa)	-	15%	35%	45%	5%
Medium (4,000 - 15,000 lambs pa)	-	-	75%	38%	-
Large (15,000 lambs or more pa)	-	20%	100%	80%	-



Q30 What is the average age of purchased, sourced or inducted lambs?

The majority of all lamb finishers across the three categories source lambs at early post weaning age (16 weeks) and above.



	> 10 weeks	10 to 12	12 to 14	14 to 16	> 16 weeks old
Small (<4,000 lambs pa)	-	-	5%	5%	90%
Medium (4,000 - 15,000 lambs pa)	-	-	-	25%	75%
Large (15,000 lambs or more pa)	-	-	-	-	100%



Q31 What percentage of lambs are shorn on feedlot entry?

The majority (68%) of small lamb feedlots shear lambs immediately prior to entry whereas there was a wider spread for the medium and large feedlots.

Only 38% and 33% of medium and large feedlotters respectively shear the majority of the lambs on entry, with half of the large feedlots shearing between 50-70% of lambs prior to entry. While 38% of medium sized feedlots shear 50-70% and a further 38% of medium sized feedlots shear 70-80% of lambs on entry, a small percentage shear less than half.

Lambs shorn prior to purchase may not be reflected in this data.



	< 10%	10- 20%	20 - 50%	50 - 70%	70 – 100%
Small (<4,000 lambs pa)	9%	5%	5%	14%	68%
Medium (4,000 - 15,000 lambs pa)	-	13%	13%	38%	38%
Large (15,000 lambs or more pa)	-	-	17%	50%	33%



Q32 Do you use an agent to purchase lambs?

The majority of feedlotters did not use agents to source lambs.



	Yes	No
Small (<4,000 lambs pa)	36%	64%
Medium (4,000 - 15,000 lambs pa)	38%	63%
Large (15,000 lambs or more pa)	50%	50%



Survey Responses

Induction and Animal Health

Answers to questions 33-37



Source: Feedlot Esperance WA (Productive Nutrition Pty Ltd)



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Q33 What is your induction process or health/management procedure for introduced lambs?

The data suggests that the majority of feedlotters drench, weigh and shear their lambs, although the medium sized feedlots were less likely to weigh the lambs in and the large feedlots less likely to shear the lambs. Lambs shorn prior to purchase may not be reflected in this data.

The use of fly strike treatments and Weanerguard was relatively low across all feedlot categories. Respondents to the following question (Q 34) indicated a high rate of vaccination, which may suggest that the majority of feedlotters do not use Weanerguard as their vaccination of choice. Other treatments included the use of B12 and AD&E injections.



	Weaner guard	Weigh	Drench	Shear	Fly treatment	Other
Small (<4,000 lambs pa)	27%	82%	100%	73%	27%	23%
Medium (4,000 - 15,000 lambs pa)	13%	50%	75%	50%	25%	-
Large (15,000 lambs or more pa)	33%	100%	100%	50%	33%	50%



Q34 What vaccinations are used?

As the risk of enterotoxaemia in grain finished lambs is quite high, it was surprising that 25% of medium sized feedlots did not vaccinate, however some feedlotters that responded with "none", did indicate that they vaccinated prior to feedlot entry.

Both medium and large feedlotters appeared to use 5:1 and 6:1 more commonly, whereas smaller feedlotters used 3:1 as their preferred vaccine.



	5 in 1	6 in 1	3 in 1	None
Small (<4,000 lambs pa)	23%	23%	45%	9%
Medium (4,000 - 15,000 lambs pa)	50%	13%	13%	25%
Large (15,000 lambs or more pa)	50%	50%	-	-



Q35 How often, if at all, are lambs weighed?

All the large feedlots included in the stocktake weighed lambs in and out of the feedlot, although a small percentage monitored weight gain during the finishing period as well.

A greater percentage of small and medium feedlotters monitored weight gain at more regular intervals while some small feedlots (9%) monitored weight gain on a weekly basis.

All feedlots monitored weight gain at some stage.



	On entry and exit	Weekly	2 - 4 weeks	4 weeks or more	Never
Small (<4,000 lambs pa)	50%	9%	55%	27%	-
Medium (4,000 - 15,000 lambs pa)	50%	-	50%	13%	-
Large (15,000 lambs or more pa)	100%	-	17%	17%	-



Q36 Do you have specific protocols for sick lambs?

The data indicated that across the three feedlot categories most feedlotters have a protocol for managing sick lambs.



	Yes, specific protocol	No protocol
Small (<4,000 lambs pa)	77%	23%
Medium (4,000 - 15,000 lambs pa)	88%	13%
Large (>15,000 lambs pa)	67%	33%



Q37 Are the feedlot groups which lambs are placed into at induction ever changed? If yes how often?

Interruption of social groups within feedlot pens mainly resulted from the drafting out of finished lambs for slaughter, although 25% of medium sized feedlots draft lambs at every weight check. As 50% of medium sized feedlots weighed every 2-4 weeks, lambs could be changing groups frequently in some feedlots.

Lambs remained in the original entry groups in less than 20% across each feedlot category.



	Never changed	Same mob as when purchased	Drafted only once at induction	Altered at every weigh	Altered only occasionally, as heavy animals are drafted	Varied frequently
Small (<4,000 lambs pa)	18%	-	9%	14%	59%	-
Medium (4,000 - 15,000 lambs pa)	13%	-	-	25%	63%	-
Large (15,000 lambs or more pa)	17%	-	17%	17%	50%	-



Survey Responses

Nutrition

Answers to questions 38-52



Source: Feedlot mid North SA (Productive Nutrition Pty Ltd)



Q38 Do you have feeds analysed for feed value?

Most feedlotters tested feed ingredients for nutritive value. 100% of the large feedlotters tested feed for nutritive value, whereas 38% and 27% of medium and small feedlotters respectively did not test their feed.

Q39 Do you have feeds analysed for residues?

A small proportion of respondents indicated that they were testing for residues.



	Tested For Feed Value	Not Tested For Feed Value
Small (<4,000 lambs pa)	73%	27%
Medium (4,000 - 15,000 lambs pa)	63%	38%
Large (15,000 lambs or more pa)	100%	-



Q40 What resources/publications have been accessed when designing your feed rations?

Independent consultants were the most commonly used resource for ration formulation for the small and large feedlots, whereas feedlotters with medium sized operations were more likely to gain information from a variety of sources.

A significant number of all feedlotters used information gained from their own research or observations to assist them in the formulation of their rations.



	DPI/ or MLA Independ publications/resources Consulta		other publications/ web	Own research/ trials
Small (<4,000 lambs pa)	48%	67%	19%	48%
Medium (4,000 - 15,000 lambs pa)	50%	38%	13%	75%
Large (15,000 lambs or more pa)	33%	83%	17%	67%



Q41 Do you use different ration formulations at different times in your feedlot?

The majority of medium and large feedlots use both a starter and finishing ration, with a high proportion of the large feedlots also using an intermediate ration.

Smaller feedlots were more inclined to use a finishing ration, which may have been introduced slowly over time.



	Starter	Intermediate	Finishing	More/Other
Small (<4,000 lambs pa)	55%	27%	95%	9%
Medium (4,000 - 15,000 lambs pa)	88%	38%	88%	13%
Large (15,000 lambs or more pa)	83%	67%	83%	17%



Q42 What is your average feed conversion ratio (feed:weight gain)?

The limited explanation of feed conversion ratio provided in the survey may have affected the accuracy of the responses provided; 6 producers provided no response to this question.

Feed conversion ratio refers to the amount of kilograms of feed required (on an as-fed basis) to produce 1 kg of live weight gain.

From the data collected, it would appear that the majority of lambs in feedlots were converting feed to gain at a ratio of less than 6:1.



	< 5:1	5:1 to 6:1	6:1 to 7:1	7:1 to 8:1
Small (<4,000 lambs pa)	11%	44%	28%	17%
Medium (4,000 - 15,000 lambs pa)	43%	43%	14%	-
Large (15,000 lambs or more pa)	20%	60%	20%	-



Q43 What is your average percentage of shy feeders/acidosis?

While acidosis and shy feeding are common problems in feedlots, there is no known relationship between these two "conditions".

The response to this question indicates that with the exception of a small percentage of medium feedlotters, lambs exhibiting either of these problems are estimated at less than 5%.



	< 2%	2-5%	5-8%	8-10%
Small (<4,000 lambs pa)	81%	19%	-	-
Medium (4,000 - 15,000 lambs pa)	50%	38%	-	13%
Large (15,000 lambs or more pa)	33%	67%	-	-



Q44 What is the average death rate of lambs in your feedlot?

It would appear that the smaller the feedlot, the lower the death rate, and that the majority of feedlots experience a death rate below 1%.



	< 0.5%	0.5 - 1%	1 - 2%	> 2%
Small (<4,000 lambs pa)	59%	27%	14%	-
Medium (4,000 - 15,000 lambs pa)	38%	50%	-	13%
Large (15,000 lambs or more pa)	40%	60%	20%	-



Q45 On average what length of time do lambs spend in the feedlot?

5% of the smaller feedlots indicated lambs on feed for periods of between 1 and 3 weeks. This could be as a result of removing shy feeders and poor growth lambs early.

Short term feeding for 3-5 weeks was practised by 32% of the smaller feedlots and 63% of these practised longer term feeding.

Most medium, and all of the larger feedlots in the survey, practiced longer term feeding periods which would be required to achieve export target weights. A feeding time of in excess of 7 weeks (49 days) would be required to achieve heavy export lamb weights.



	1-3 weeks	3 - 5 weeks	5 - 7 weeks	> 7 weeks
Small (<4,000 lambs pa)	5%	32%	36%	27%
Medium (4,000 - 15,000 lambs pa)	-	13%	63%	25%
Large (15,000 lambs or more pa)	-	-	67%	33%



Q46 What grain/pellets do you use in your feedlot (major component)?

The majority of all feedlot rations were cereal grain based with 41% and 38% of small and medium feedlots respectively, using additional protein sources.

Only 17% of the large feedlots had additional protein sources in their rations with a relatively high percentage of all feedlots using pellets. The question did not allow differentiation between a complete pellet or pelleted mineral concentrate, therefore it was unclear as to whether or not pellets were used as a complete feed.



	Cereal grains	Lupins/legume Fruit/veg whole/processed		Oil seed	Pellets
Small (<4,000 lambs pa)	73%	41%	-	-	23%
Medium (4,000 - 15,000 lambs pa)	75%	38%	-	-	25%
Large (15,000 lambs or more pa)	67%	17%	-	-	33%



Q47 What percentage is the grain content in the starter ration?

The amount of grain included in the starter ration was highly variable across the three feedlot categories and a relatively high proportion of small and medium respondents did not know the grain content of their starter rations; these feedlotters may have been those feeding pellets, but this is not clear.

From the data it appears that many small and medium feedlotters introduce lambs to grain slowly, whereas 30% of large feedlotters introduce lambs to a diet of 50-65% grain.



	< 30%	30 - 40%	40 - 50%	50 - 65%	> 65%	Don't know
Small (<4,000 lambs pa)	37%	5%	11%	5%	26%	16%
Medium (4,000 - 15,000 lambs pa)	43%	29%	-	14%	-	14%
Large (15,000 lambs or more pa)	17%	17%	17%	33%	17%	-



Q48 What percentage is the grain content in the finishing ration?

The data shows that the majority of small and large producers have a finishing ration that is grain dominant, with at least 50% of the medium feedlotters falling into the same category. The high percentage (25%) of medium sized feedlots using pelleted rations makes interpretation of their responses difficult as some pellets are 100% grain based while others are only 50% grain based.



	< 50%	50 - 65%	60 - 80%	80 - 90%	> 90% (or pellets)	Don't know
Small (<4,000 lambs pa)	5%	5%	27%	36%	14%	14%
Medium (4,000 - 15,000 lambs pa)	13%	-	25%	25%	25%	13%
Large (15,000 lambs or more pa)	-	-	33%	50%	17%	-



Q49 What roughage is fed to your lambs?

A high percentage of the medium and large feedlots provided high quality roughage for feedlot lambs, although 50% of the larger feedlots indicated the provision also of low quality roughages.

It could be assumed that a proportion of the smaller feedlots that did not provide roughage were feeding hay based pellets.



	High Quality (Legume, Silage)	Medium (Grain Hay, Good Pasture Hay, Poorer Silage)	Low Quality (Stubble, Grass Hay)	No Roughage/ Other
Small (<4,000 lambs pa)	32%	36%	27%	14%
Medium (4,000 - 15,000 lambs pa)	63%	13%	25%	-
Large (15,000 lambs or more pa)	67%	17%	50%	-



Q50 What percentage is the roughage content in the starter ration?

Roughage comprised greater than 50% of the starter ration in over half the medium sized feedlots, 50% of the large feedlots and in only one third of the smaller feedlots.

Approximately one third of the medium and large feedlots included 20-30% roughage in the starter ration. A relatively high proportion of medium sized feedlots provided less than 10% roughage, which could be could represent those feeding with hay based pellets.



	< 10%	10 - 20%	20 - 30%	30 - 50%	> 50%
Small (<4,000 lambs pa)	-	13%	20%	33%	33%
Medium (4,000 - 15,000 lambs pa)	14%	-	29%	-	57%
Large (15,000 lambs or more pa)	-	17%	33%	-	50%



Q51 What percentage is the roughage content in the finishing ration?

The roughage component of the finishing ration was considerably less across the three feedlot categories although 13% of the medium sized feedlots maintained relatively high roughage proportions in the finishing ration in comparison with the other two categories.



	< 10%	10 - 20%	20 - 30%	30 - 40%	> 40%
Small (<4,000 lambs pa)	19%	50%	19%	13%	-
Medium (4,000 - 15,000 lambs pa)	38%	13%	25%	13%	13%
Large (15,000 lambs or more pa)	50%	50%	-	-	-



Q52 What live weight is targeted for finished animals?

Over 80% of the larger feedlots were targeting heavy weight lambs of 50-55 kgs live weight, however the feedlots with a turnover of 4-15,000 lambs per annum tended to supply to a broader based specification.



	< 40 kg	40 - 45 kg	45-50 kg	50-55 kg	55 kg+
Small (<4,000 lambs pa)	-	5%	32%	50%	18%
Medium (4,000 - 15,000 lambs pa)	-	13%	50%	50%	25%
Large (15,000 lambs or more pa)	17%	33%	50%	83%	33%





Survey Responses

Marketing

Answers to questions 53-55



Source: Carcases in chiller (Geoff Duddy)



Q53 What percentage of lambs sold are forward contracted?

Although feedlotting lambs is a relatively high risk enterprise, a surprisingly high percentage of smaller feedlots indicated that they were not forward contracting lambs. There was a significant spread amongst the larger feedlots as to the percentage of lambs committed to forward contracts however the medium sized feedlots appeared to secure the sale and price of the vast majority of their lambs.



	Nil	<20%	20 - 50%	50 - 70%	70 - 100%
Small (<4,000 lambs pa)	45%	5%	9%	14%	27%
Medium (4,000 - 15,000 lambs pa)	-	14%	-	14%	71%
Large (15,000 lambs or more pa)	-	33%	17%	33%	33%



Q54 What percentage of lambs is sold over the hooks?

The overwhelming majority of lambs across all feedlot categories were traded over the hooks, with the exception of the small feedlots where a relatively high percentage of them did not utilise hooks trading.



	Nil	<20%	20 - 50%	50 - 70%	70 - 100%
Small (<4,000 lambs pa)	32%	5%	5%	5%	55%
Medium (4,000 - 15,000 lambs pa)	-	25%	-	-	75%
Large (15,000 lambs or more pa)	-	-	-	17%	83%





Survey Responses

Business

Answers to questions 56-63



Source: Feedlot mid North SA (Productive Nutrition Pty Ltd)


Q56 Have you completed a business plan for your feedlot?

Despite lamb feedlotting being perceived as a "low margin, high turnover" and therefore potentially high risk business, none of the large feedlot operators included in this survey had completed a business plan. Clearly some of the large feedlotters view a business plan for their own use or for major financing as different to a business plan, as these plans had been prepared by 25% of the large feedlotters, contradicting the early statistic that 100% of large feedlots had not completed a business plan.

68% of the smaller feedlots and 50% of the medium feedlots had not prepared any business plan while 25% of feedlotters from all categories had prepared business plans for their own use. 25% of medium feedlotters had also prepared business plans for financing purposes.



	No	In the process	Yes, for own use	Yes, for financing partial project	Yes, for financing most of the project
Small (<4,000 lambs pa)	68%	5%	27%	-	-
Medium (4,000 - 15,000 lambs pa)	50%	-	25%	13%	13%
Large (15,000 lambs or more pa)	100%	-	25%	-	25%



Q57 Have you completed a Gross Margin budget for this enterprise?

Gross margin budgets are simple budgets including variable costs and the majority of feedlotters indicated that they had completed these budgets for their feedlots. One quarter of small to medium feedlots and one third of the large feedlots had not completed a gross margin budget.



	Yes	No
Small (<4,000 lambs pa)	73%	27%
Medium (4,000 - 15,000 lambs pa)	75%	25%
Large (15,000 lambs or more pa)	67%	33%



Q59 How often is your Gross Margin budget updated?

The frequency at which a gross margin budget is updated will depend on the in flow and out flow of lambs from the feedlot and as expected, the question resulted in a broad spread of responses. The majority of medium to large feedlots updated gross margin budgets monthly, although the smaller feedlots tended to update following in flow of lambs.



	Not updated	After purchase of new inputs	Weekly	Monthly	Half yearly	Annually
Small (<4,000 lambs pa)	16%	32%	11%	11%	5%	32%
Medium (4,000 - 15,000 lambs pa)	29%	14%	-	43%	-	14%
Large (15,000 lambs or more pa)	-	25%	25%	50%	-	25%



Q60 Does this include labour?

A high percentage of small feedlots did not factor in a cost for their labour, as the owner would be doing the work, whereas the medium and larger sized feedlots which were more likely to employ outside labour factored in a labour cost.



	Yes	No
Small (<4,000 lambs pa)	44%	56%
Medium (4,000 - 15,000 lambs pa)	63%	38%
Large (15,000 lambs or more pa)	100%	-



Q61 How many work hours per day is spent in the feedlot?

As would be expected the larger enterprises required longer hours of work within the feedlot, whereas the smaller feedlots demanded the least time. Due to the large range in turnover of the medium sized enterprises, there was a broad range of hours required to be worked in the feedlot.



	< 2 hrs	2 - 4 hrs	4 - 6 hrs	6 - 8 hrs	> 8 hrs
Small (<4,000 lambs pa)	68%	27%	5%	-	-
Medium (4,000 - 15,000 lambs pa)	38%	38%	-	13%	13%
Large (15,000 lambs or more pa)	-	-	50%	-	50%



Q62 Do you use feed budget software or other supporting software for the feedlot?

Proprietary software was not a preferred option across the three feedlot categories, however the small feedlotters indicated the use of simple software and one third of the larger feedlotters used their own budgeting program.



	Yes, simple	Yes, my own programme	No	
Small (<4,000 lambs pa)	27%	5%	68%	
Medium (4,000 - 15,000 lambs pa)	13%	13%	75%	
Large (15,000 lambs or more pa)	17%	33%	50%	



Q63 Do you use a computer to manage the feedlot business? If yes, how often?

The majority of the small and medium sized feedlotters who use a computer, do so for less than two hours per month, however a small percentage have more frequent usage of less than two hours per week.

At least 50% of the large feedlot operators spend less than two hours per week and the other 50% less than two hours per month.



	Less than 2 hrs per month	Less than 2hrs per week	2-4 hrs per week	4-8 hrs per week	More than 8hrs per week
Small (<4,000 lambs pa)	73%	23%	5%	-	-
Medium (4,000 - 15,000 lambs pa)	75%	13%	13%	-	-
Large (15,000 lambs or more pa)	50%	50%	-	-	-



References

McAlister, G and Giason, A (2005) 'MLA 2005 lamb survey', Meat & Livestock Australia

