



live animal exports

a profile of the Australian industry

frank drum and caroline gunning-trant

research report 08.1 february 2008

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ISSN 1037-8286

ISBN 978-1-921448-09-6

Drum, F. and Gunning-Trant, C. 2008, *Live Animal Exports: A Profile of the Australian Industry*, abare research report 08.1 for the Australian Government Department of Agriculture, Fisheries and Forestry, Canberra, February.

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abare is a professionally independent government economic research agency.

abare project 3189

foreword

Australia's live animal export industry has developed to meet the demands of its target markets in south east Asia and the Middle East. Exports of live cattle and sheep have represented a small but important component of Australian livestock trade, and are important to the regional economies of parts of northern and western Australia.

ABARE was commissioned by the Food and Agriculture Division of the Australian Government Department of Agriculture, Fisheries and Forestry to assess the size and value of the live export sector and analyse the factors influencing global trade and Australia's share of this trade over time.

This report contains summary statistics of Australian live cattle and sheep trade, including the volume and value of exports to major markets. The dependence of broadacre farms in northern and western Australia on income from live exports is analysed using ABARE's farm surveys data. The drivers of demand for Australian exports are identified in the report, and the challenges facing the industry in the future are discussed.



Phillip Glyde
Executive Director
February 2008

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1 introduction

Australia's live animal export industry has developed to meet the demands of its target markets. For cattle, the emergence of south east Asian economies throughout the 1980s resulted in a reshaping of the Australian sector from one exporting principally breeding cattle for herd rebuilding, to one exporting feeder and slaughter cattle to developing regional feedlot industries. For sheep, export demand has emanated principally from the Middle East. Increasing incomes in importing countries have been one of the principal factors affecting the growth in demand for live sheep from Australia. Indeed, since 1990, exports of Australian sheep to the Middle East have increased by 25 per cent.

northern australia's cattle industry

Restructuring of Australia's cattle sector, particularly in Western Australia and the Northern Territory, served to meet new offshore demand for livestock. The demand stemmed largely from south east Asian industry reforms to develop self sustaining feedlot sectors. In addition, demand was shaped by cultural and religious traditions and socioeconomic factors such as low incomes and lack of storage and refrigeration.

The trade that developed for feeder cattle between Australia and south east Asia in the 1980s was based on Australia's comparatively low cost of producing animals adapted to tropical climates, the disease free status of Australia's industry and the geographic proximity to these markets. However, it was not always this way.

In the past, the limited regional beef market and the significant distance from major Australian domestic beef markets limited the marketing options of early northern cattle producers. Before 1980, cattle herds in northern Australia were not typically contained within paddocks. Cattle spent their lives in the bush until mustered by producers for slaughter. The weight, quality, condition and age of these cattle varied considerably, some being as old as five or six years (abare 2007b). Consequently, the meat produced was of low quality and commanded a low price.

Since that time there have been numerous improvements in herd management, animal genetics, animal husbandry techniques, feeding and veterinary care. These stemmed in part from the Australian Government's Brucellosis and Tuberculosis Eradication Campaign (BTEC) introduced in 1970. Property improvement in the form of improved infrastructure

such as fencing, watering points and pasture management made the cattle industries in the Northern Territory and Western Australia, previously low input industries, more profitable (Rutherford 1995). The provision of extra water increased the carrying capacity of the land, allowing cattle to graze throughout the dry season. The average age of turnoff from the northern herd was reduced as a consequence.

Australia's cattle industry used to be dominated by European *Bos taurus* breeds for both dairy and beef production. As part of BTEC, the west and the north of the country were restocked with *Bos indicus* breeds. These animals are not only better suited to tropical climates than their European counterparts but are also indigenous to the target countries. They have a much greater tolerance to high temperatures and internal parasites, as well as greater tick resistance. These cattle played a major role in the development of Australia's live cattle export sector. By providing a product that was competitive with domestic stock in export markets, the price for feeder and slaughter cattle from Australia increased. In recent years the industry has continued to develop and now ships to markets in the Middle East.

Improvements in infrastructure, including land and sea transport, through the use of ships and cargo trucks specialising in transporting livestock, have also facilitated the export of live cattle. The marketability of live cattle in the north improved with the use of export depots. These depots, such as Opium Creek Station and the Berrimah Export Yards near Darwin, and Austasia export services at Katherine, are situated close to ports where quarantine requirements can be fulfilled by the Australian Quarantine and Inspection Service.

As the northern export cattle industry developed, strong demand for live product resulted in prices for feeder and finished cattle increasing. As a consequence, the number of export accredited abattoirs in the region decreased as slaughter cattle were diverted away from the beef trade toward the live cattle trade.

australia's sheep industry

Australia's sheep industry has historically been dominated by outcomes in wool markets. However, while wool will remain important in the future, sheep meat production is becoming an increasingly significant driver of developments in the industry. This situation has been developing over a number of years as producers have moved resources away from wool production in favour of other farm enterprises such as prime lamb, crops and beef cattle.

Since the late 1980s, export markets for lamb and mutton, as well as live animals, have become increasingly important for Australian producers. In

1988, Australia exported just 16 per cent of its lamb production. By 2005, not only had production increased by 42 per cent to 413 000 tonnes, but the proportion exported had also increased to 43 per cent.

Demand for Australian lamb and mutton has been stimulated by trade liberalisation in the United States, falling production in key lamb markets (particularly the United States and Europe), limited growth in exports from competitor countries such as New Zealand and rising demand in Asia as consumers look for alternative meats in the wake of disease outbreaks affecting beef and poultry. Export growth has enabled the prime lamb industry to expand, increasing farm profitability and bringing about a substantial rise in the number of specialist lamb producers (abare 2004).

Australia has been exporting live sheep for more than a hundred and fifty years. In recent years, the largest market for live sheep has been the Middle East, a trade route that developed during the 1970s, with demand stemming principally from Iran. Since that time, shipments have expanded to many countries in the region, including Saudi Arabia, Kuwait, the United Arab Emirates and Jordan.

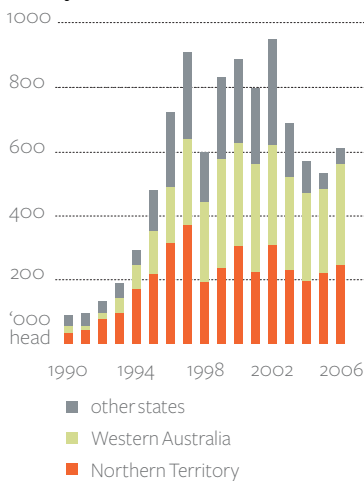
awassi breed

In general, Middle East markets have a preference for carcasses in the 8 – 12 kilograms (carcass weight) range (MLA 2007) from 'fat tail' varieties of sheep such as the awassi breed. Fat tail sheep produce lean carcasses that are considered to be higher quality and therefore receive higher prices in Middle East market. They are the most common breed of sheep in the Middle East, where they are highly valued for both meat and milk. In order to benefit from the price premium offered for these animals relative to merino sheep, some Western Australia producers have introduced fat tail sheep breeds into their flocks.

Despite the preference for fat tail sheep varieties, the majority of the sheep shipped to the Middle East are merinos, reflecting the limited number of fat tailed sheep in Australia. The Western Australia Department of Agriculture (2004) estimated there were only 64 000 fat tailed sheep in Australia in 2001 out of a total of 23 million sheep. As a consequence, merinos typically fall into the lower price categories for live export.

2 australia's live animal export industry

a australia's live cattle exports, by state



cattle

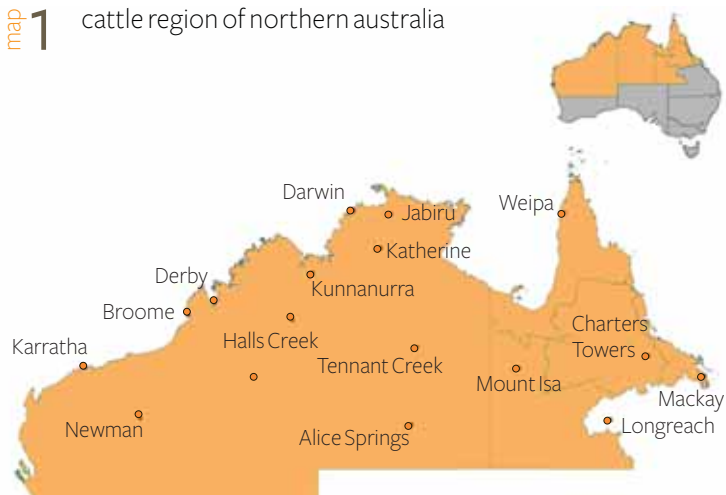
Exports of live cattle are an important segment of Australia's cattle market and add significantly to the total value of Australian exports. In 2006-07, exports of live cattle accounted for around 7 per cent of total Australian cattle turnoff and 6 per cent of the total value of cattle production. In 2006-07, Australia exported 638 000 cattle (figure a), valued at close to \$437 million (abare 2007a).

The live export market sources cattle from both the north and south of Australia, each region having its own distinct production system. Within Australia, the markets targeted by live cattle producers vary across states. Dairy cattle for breeding, for example, are shipped principally from the southern ports of Devonport, Adelaide and Portland. Feeder and slaughter cattle on the other hand are shipped principally from ports in western and northern Australia. Appendix A provides a breakdown of the number of cattle loaded at each port. Shipments destined for south east Asia make up the majority of live cattle shipments and are loaded mainly in Darwin but also in Wyndham and Broome (Norris and Norman 2006).

Live cattle exports are very important to the economies of some regions of Australia. Just over a third of the Australian beef herd is located in northern Australia (map 1). In recent years, more than 80 per cent of total live cattle exports, including most slaughter and feeder cattle, have been sourced from northern Australia. As such, the economic impacts of changes to live-stock export standards or fluctuations in relative prices are concentrated on particular producers and regions. According to abare farm survey data, 75 per cent of properties in the northern regions that carry more than 300 beef cattle were either partially or substantially reliant on receipts from live export cattle over the ten years 1995-96 to 2004-05 (abare 2007b).

Farm cash incomes for northern Australian properties were at record high in 2000-01 and 2001-02 on the strength of high cattle prices and high cattle turnoff for both live export and other markets (table 1). Farm cash incomes then fell sharply in 2002-03 as lower cattle prices reduced total cash receipts and farm expenditure on cattle purchases and fodder increased. In the period from 2001-02 to 2004-05, average farm cash incomes declined by 40 per cent to around \$207 000 before increasing

map 1 cattle region of northern australia



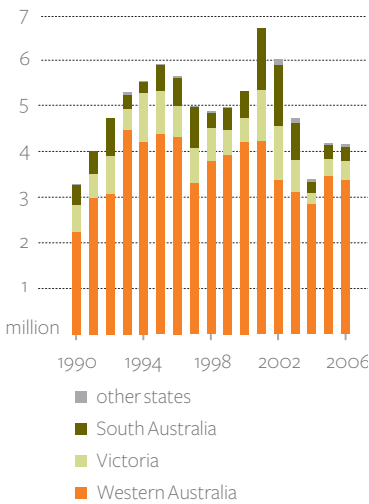
1 financial performance of beef properties with more than 300 cattle – northern live exporting zone

average per property, financial estimates are in real terms expressed in 2006-07 dollars

		2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
physical							
area operated at 30 June	ha	136 488 (8)	131 642 (9)	122 343 (29)	136 970 (12)	114 857 (6)	114 208 (10)
beef cattle at 30 June	no.	5 047 (7)	4 933 (8)	4 652 (5)	4 799 (8)	4 263 (7)	4 202 (10)
beef cattle sold							
– total	no.	1 176 (11)	1 130 (12)	1 054 (7)	1 127 (8)	1 110 (9)	897 (22)
– for live export	no.	334 (15)	404 (24)	345 (18)	269 (26)	200 (21)	180 (30)
turnoff rate a	%	30 (6)	31 (8)	31 (5)	33 (5)	33 (7)	33 (10)
average beef cattle price							
– sold live to export							
markets	\$/hd	565 (3)	649 (3)	475 (5)	503 (4)	581 (5)	550 (3)
– sold to other markets	\$/hd	650 (5)	653 (6)	596 (4)	606 (5)	677 (4)	675 (3)
receipts							
beef receipts	\$	736 021 (11)	736 943 (10)	586 521 (7)	655 314 (10)	732 209 (8)	582 920 (22)
proportion of receipts							
from live export sales	%	20 (16)	25 (19)	20 (16)	14 (26)	13 (19)	11 (31)
total cash receipts	\$	954 792 (9)	1 066 117 (9)	825 888 (6)	956 535 (10)	919 444 (7)	932 641 (15)
costs							
beef cattle purchases	\$	48 511 (18)	71 422 (21)	72 379 (21)	59 409 (27)	137 950 (47)	62 128 (18)
total cash costs	\$	591 552 (9)	722 660 (10)	679 799 (6)	734 927 (11)	712 740 (14)	604 248 (10)
financial performance							
farm cash income	\$	363 240 (13)	343 457 (16)	146 089 (24)	221 608 (27)	206 704 (37)	328 393 (29)
farm business profit	\$	353 103 (14)	285 719 (20)	51 602 (85)	45 731 (93)	144 923 (28)	141 671 (35)
rate of return b							
– exc. capital appreciation	%	7.5 (12)	5.3 (16)	1.5 (40)	1.4 (37)	2.7 (21)	2.4 (24)
– incl. capital appreciation	%	21.1 (6)	13.6 (11)	9.2 (17)	9.4 (20)	4.6 (45)	8.1 (20)
estimated population of							
properties	no.	1 359	1 395	1 350	1 385	1 448	1 395

a includes beef transferred to other properties. **b** Calculated as farm business profit adjusted to full equity as a percentage of total opening farm capital. Note: Figures in parentheses are standard errors expressed as percentages of the estimates provided.

b australia's live sheep exports, by state



by 60 per cent in 2005-06 as a result of higher cash receipts and lower beef cattle purchases. Over the medium term it is forecast that increased availability of cattle suitable for live export and an assumed depreciation of the Australian dollar will make live exports more attractive to importing countries. These factors are forecast to underpin further increases in live cattle exports.

sheep

In 2006-07, exports of live sheep accounted for around 11 per cent of total sheep turnoff and 15 per cent of the total value of sheep meat production. In 2006-07, Australia exported around 4.1 million sheep, valued at approximately \$290 million (abare 2007a). Most sheep exported by Australia are destined for markets in the Middle East, particularly Saudi Arabia, Kuwait, Jordan, Bahrain and Oman (table 2). Exports to these markets represented almost 90 per cent of the total value of Australian live sheep exported in 2006-07.

More than 80 per cent of the sheep are loaded in Western Australia, with 11 per cent and 7 per cent of shipments sourced from Victoria and South Australia respectively (figure b). Details on the specific ports of loading are provided in appendix B. As for cattle, the impact of changes to live-stock export standards, the cessation of exports to a particular market, or increases in the Australian price are felt most acutely in certain regions.

According to abare farm survey data, the number of broadacre farms in Western Australia with more than 300 sheep decreased by 9 per cent

2 australia's live sheep exports to the middle east
in 2006-07 dollars

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
	A\$m	A\$m	A\$m	A\$m	A\$m	A\$m	A\$m
Saudi Arabia	77	147	182	15	0	88	105
Kuwait	71	105	114	111	70	69	59
Jordan	27	42	35	65	65	41	34
Bahrain	19	28	28	33	34	42	37
Oman	27	31	24	19	21	26	25
United Arab Emirates	37	39	22	18	13	17	13
Qatar	19	22	18	13	11	13	12
Israel	3	19	13	5	2	0	1
Egypt	15	13	8	0	0	0	0
Palestine	1	1	4	0	0	0	0
Lebanon	3	0	3	3	0	0	0
total to Middle East	299	446	451	283	217	297	286

Source: ABS (2007).

between 2003-04 and 2005-06 (table 3). However, the proportion of sheep sold for live export per property increased from 22 per cent in 2003-04 to 40 per cent in 2005-06. In 2005-06, the average number of animals sent to the live export market rose to 691 per property, an increase of 28 per cent over the previous five year average. Despite this growth, broadacre farms that carried sheep earned only 7 per cent of their total cash receipts from live sheep exports in 2005-06. Typically, broadacre farms in Western Australia generate the majority of their farm cash income from cropping receipts. In the three years 2001-02 to 2003-04, average farm cash incomes for Western Australian broadacre properties increased by 30 per cent to around \$182 000. However, in 2004-05 and 2005-06, farm cash incomes fell because of lower cropping and cattle receipts combined with higher costs for sheep purchases.

3 financial performance of western australian broadacre farms with more than 300 sheep

average per property, financial estimates are in real terms expressed in 2006-07 dollars

		2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
physical							
area operated at 30 June	ha	9 450 (27)	9 432 (21)	3 810 (28)	4 730 (26)	7 240 (14)	4 576 (20)
sheep at 30 June	no	3 606 (7)	3 715 (7)	3 723 (8)	3 859 (10)	3 926 (11)	3 882 (9)
sheep sold							
- total	no	1 519 (9)	1 395 (8)	1 325 (7)	1 361 (9)	1 396 (9)	1 744 (11)
- for live export	no	343 (20)	353 (17)	156 (22)	299 (19)	367 (19)	691 (25)
turnoff rate ^a	%	41 (8)	38 (8)	37 (8)	40 (8)	36 (7)	45 (9)
average sheep price							
- sold live export	\$/hd	33 (4)	53 (4)	73 (13)	56 (4)	49 (4)	51 (3)
- sold to other markets	\$/hd	30 (12)	49 (6)	54 (6)	61 (4)	52 (4)	53 (4)
receipts							
sheep receipts	\$	47 197 (16)	69 519 (10)	74 000 (9)	81 489 (9)	71 793 (10)	90 708 (11)
proportion of receipts							
from live export sales	%	3 (21)	4 (18)	2 (23)	3 (17)	3 (15)	7 (22)
total cash receipts ^a	\$	347 273 (6)	507 062 (5)	518 618 (6)	601 492 (7)	558 373 (6)	503 199 (7)
costs							
sheep purchases	\$	5 609 (16)	11 186 (18)	15 085 (14)	18 107 (18)	12 913 (19)	18 426 (23)
total cash costs	\$	310 209 (6)	365 992 (5)	400 171 (5)	419 156 (7)	450 497 (7)	422 828 (8)
financial performance							
farm cash income	\$	37 064 (33)	141 069 (12)	118 447 (18)	182 336 (12)	107 876 (14)	80 371 (21)
farm business profit	\$	-63 792 (23)	64 131 (24)	39 148 (52)	107 324 (18)	14 164 (120)	-24 142 (68)
rate of return ^b							
- excl. capital appreciation	%	-1.4 (50)	4.3 (15)	3.0 (25)	4.8 (14)	1.7 (26)	0.8 (45)
- incl. capital appreciation	%	2.5 (39)	8.6 (10)	9.1 (11)	15.2 (11)	10.0 (17)	12.2 (34)
estimated population of							
properties	no	6 250 -	5 944 -	5 897 -	6 330 -	6 292 -	5 790 -

^a Includes sheep transferred to other properties. ^c Calculated as farm business profit adjusted to full equity as a percentage of total opening farm capital. Note: Figures in parentheses are standard errors expressed as percentages of the estimates provided.

In the medium term, further growth in Australia's trade in live sheep is forecast to be constrained by the availability of suitable sheep following flock liquidations arising from the recent drought. Despite the anticipated gradual depreciation of the Australian dollar, the positive effect that lower supplies will have on prices will make live sheep exports to the Middle East less competitive than those from other exporting countries such as Sudan and China.

3 australia's export markets

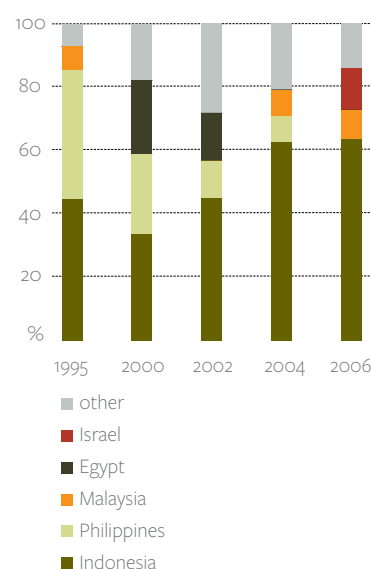
Beef production in south east Asia has generally been unable to keep up with demand. Supply of domestic beef has been constrained by a number of factors, including the availability of land, traditional beef marketing systems, domestic policies, the limited supply of labour skilled in animal husbandry techniques and a lack of capital and infrastructure. Imports of live cattle, either for finishing or for slaughter, allow supply shortfalls to be overcome. They also overcome problems such as the lack of refrigeration facilities and the meeting of religious preferences for halal product.

Many Asian countries have a comparative advantage in the latter stages of beef production. This is related to the availability of low cost agricultural byproducts used for cattle feed, and low cost labour and associated meat processing charges. As described by Rutherford (1995), some feedlots developed around a food processing plant or oil mill to take advantage of low cost byproducts such as molasses, palm kernel cake, or copra meal or bran. Thus, while expansion of domestic herds may have been limited by land availability and the economic circumstances of small landholders — who often raised cattle in 'backyard' farming operations — imports of feeder cattle were a cost effective option.

The largest market for Australian exports of live cattle is Indonesia, taking over 50 per cent of total shipments since 2004. Less than a decade ago the Philippines and Egypt were the second and third largest markets for Australian live exports (figure c). However, the effects of movements in exchange rates, agricultural reforms in general and reforms to livestock sectors in particular have resulted in dwindling shipments of Australian livestock to these countries. In 2006, Israel and Malaysia became the second and third largest markets for Australian live cattle exports, accounting for 13 per cent and 9 per cent of exports respectively.

Despite the growth in demand for beef in south east Asia, beef still makes up a relatively small proportion of the total meat consumed per person. In 2005, beef accounted for between 10 and 20 per cent of total annual meat consumed per person (table 4). Indonesia, Australia's largest importer of live cattle, consumed only 2.4 kilograms of beef per person a year compared with 6.2 kilograms of poultry meat. In Malaysia, beef consumption makes up 9 per cent of meat consumption, while poultry meat accounts for more than 70 per cent. Such low rates of consumption are largely explained by the higher cost and lower availability of beef relative to other protein sources.

C australia's live cattle export destinations



4 annual meat consumption per person in south east Asia

	Indonesia	Malaysia	Philippines	Thailand
	kg	kg	kg	kg
pig meat	2.7	8.1	14.7	9.8
poultry meat	6.2	35.9	8.4	11.1
bovine meat	2.4	4.7	5.1	2.4
other	0.6	0.9	0.7	0
total	11.9	49.6	28.9	23.3
beef proportion	20%	9%	18%	10%

Source: FAOStat (2007).

The following section provides a brief overview of the domestic cattle sectors in four of the major cattle importing countries: Indonesia, the Philippines, Malaysia and Israel. The aim of these profiles is to highlight the similarities and differences between the cattle sectors in each country. The profiles elaborate some of the major economic changes that have taken place within the livestock sectors of these countries in the past and how those changes have affected trade with Australia.

indonesia

Indonesia's beef cattle production is dominated by smallholder producers that fatten domestic native cattle purchased from smallholder breeders. Large commercial feedlot operations were introduced in 1990, when the government allowed the import of feeder cattle from Australia. This policy formed part of a broader program to develop partnerships between feedlots and smallholders. Under the program, feedlots with superior financial and management resources were obliged to supply smallholders with imported feeder cattle, feed and technical assistance. They were then required to purchase the fattened cattle at prevailing market prices. All cash costs were paid by the feedlot and reimbursed from the sale price.

Until the Asian financial downturn in 1997, the buyback program proved effective. Relatively low prices for imported cattle and a favourable exchange rate underpinned the steady increase in Indonesian demand for Australian live cattle. By 1997, 47 per cent of Australia's total exports of live cattle (424 000) were shipped to Indonesia. The main reasons for the large export share were the low price of Australian cattle, comparatively low transport costs and the high genetic potential of the animals being shipped. However, in 1997, the sudden devaluation of the Indonesian rupiah (figure d) caused a steep increase in the relative price of imported cattle. As a result, Indonesian feedlots closed or opted to source cattle domestically. Australian live cattle exports to Indonesia fell to around 41 000 in 1998

d Australian exchange rate index monthly, ended april 2007



(figure e). This drastic decline from pre-1997 levels reflects the sensitivity of Indonesian demand to changes in import prices. Indeed, as the rupiah regained its value, import demand for cattle from Australia and other sources resumed. By 2002, Australian live cattle exports had recovered to a record 426 000.

Import demand from Indonesia for Australian live cattle remains highly sensitive to changes in the exchange rate and Australian saleyard prices of cattle. Beef is consumed by middle to higher income consumers in Indonesia. When consumers have sufficient disposable income their preferred source of protein is beef. However, increases in the price of beef relative to other sources of protein result in substitution away from beef toward lower priced protein sources such as poultry and fish. The steady increase in the nominal saleyard price of Australian feeder cattle since 1997 is shown in figure f.

Currently, Australia's live cattle export industry has an advantage over other potential suppliers of meat to Indonesia, such as India and Brazil, because of its disease free status. However, in the absence of the Indonesian government policy to restrict the entry of beef from Brazil and India to minimise the risk of an incursion of foot and mouth disease, competition in the market would be more intense.

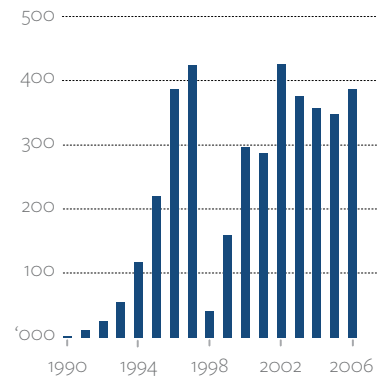
philippines

In the 1990s, strong population growth in the Philippines combined with changing food preferences and more liberal import laws resulted in a significant increase in demand for beef. With backyard cattle operations unable to meet the growing demand for beef there was an emergence of commercial farms and feedlots. The industry was heavily dependent on imports of low priced feeder cattle from Australia and New Zealand. This resulted in a significant increase in Australian live cattle exports to the Philippines during the 1990s, with live cattle exports rising to around 223 000 in 2000.

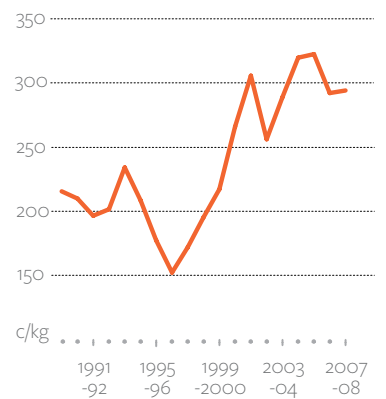
A depreciation in the Philippine peso against the Australian dollar and increased Australian saleyard prices for cattle over the past few years have reduced the profitability of commercial farms and feedlots. As a result, Philippine demand for imported live cattle from all sources has declined. Australian live cattle exports fell to around 21 000 in 2005.

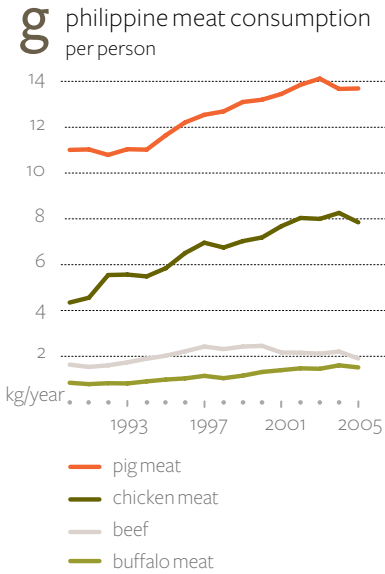
Reflecting the declining profitability of commercial farms and feedlots and the small scale of backyard farms, beef production in the Philippines increased by only 2 per cent to 225 000 tonnes between 2000 and 2005. This is in contrast with the 59 per cent growth in production over the previous five year period.

e australia's live cattle exports to indonesia



f australian saleyard cattle price nominal prices





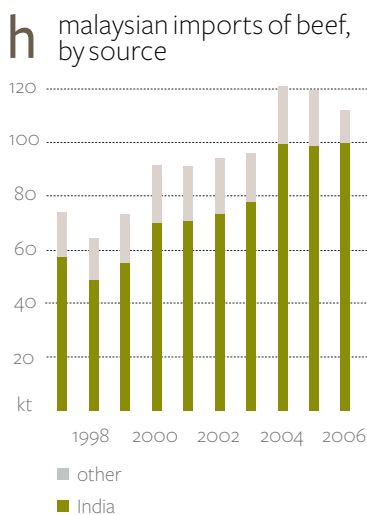
The reduction in beef supply as well as rising input and transport costs served to increase the retail price of beef in the Philippines. Consequently, beef consumption has declined. Consumers have since shifted to other low priced protein substitutes such as pork, chicken and buffalo meat (figure g).

In 2005, total beef imports declined by 15 per cent as meat processors substituted lower priced mechanically deboned chicken and turkey meat for manufacturing grade beef. According to the Philippine Bureau of Statistics, Philippine imports of frozen chicken increased by 28 per cent to 26 000 tonnes over the same period (Philippine Department of Agriculture 2007).

malaysia

Cattle production systems in Malaysia are very similar to those found in many parts of south east Asia. The majority are comprised of smallholdings of fewer than ten cattle. Production is mainly scattered over more rural areas of the country, particularly Kedah and Kelantan, which are principally rice producing regions. The animals are reared under low input extensive systems on areas of land not planted with rice (Jalaludin and Halim 1998). They selectively graze on whatever grasses exist, which can be poor quality. A feedlot system was developed during the 1990s, supported by imports of feeder cattle from Australia.

Calves produced under the subsistence conditions of smallholders are generally of variable age, size and health. In addition, the small size of the native breed Kedah–Kelantan means that abattoirs and feedlots incur higher labour and feed costs per kilogram of meat produced, with many of the slaughter processes requiring the same amount of labour regardless of animal size. Consequently, as both population and incomes have increased, the domestic cattle industry has been unable to meet the increasing demand for high quality feeder cattle, increasing the demand for imported cattle. In addition, as the feedlot sector in Malaysia has been developed, cross breeding with breeds from subtropical and temperate countries such as Australia has been used to upgrade the indigenous Kedah–Kelantan cattle for better growth performance. Reflecting the expanding feedlot industry in Malaysia and low Australian saleyard prices for cattle, Australian live cattle exports to Malaysia increased significantly during the 1990s, peaking in 2002 at around 91 000, an increase of 68 000 since 1992.



Since 2002, Australian live cattle exports to Malaysia have declined, underpinned by a 33 per cent depreciation in the Malaysian ringgit against the Australian dollar (figure d). In 2006, Australian live cattle exports were around 56 000, 38 per cent below 2002 levels. In response to the loss of one of their major suppliers because of relatively high prices, Malaysian imports of low priced Indian beef have increased significantly. Malaysia imported

around 100 000 tonnes (shipped weight) of Indian beef in 2006, 36 per cent more than in 2002 (figure h).

israel

Until 1995, beef production in Israel was limited primarily to fresh meat derived from domestic dairy cattle culls and beef cattle. The arid climate of much of Israel combined with high population density in the nonarid regions constrained the size of Israel's beef industry (USDA 2004). In 1995, however, the Government of Israel lifted barriers on live feeder calf imports. This served to increase beef production and stimulate the development of a feedlot industry.

Imported feeder calves account for about a third of the cattle destined for beef production in Israel, with the majority of calves imported from Australia and Hungary. Prior to the discovery of bovine spongiform encephalopathy (BSE or 'mad cow' disease) in Poland in 2002, Poland had been a major supplier of small calves to Israel (USDA 2004).

Calves imported from Australia arrive at an average live weight of 220–250 kilograms. They are fattened for 200–235 days until they reach slaughter weights of 500–600 kilograms. The majority of calves imported from Australia are mixed angus and brangus bulls. Bulls are preferred by Israeli feedlotter and consumers as they produce a greater proportion of forequarter meat (kosher meat generally comes from forequarters). Bulls also gain weight more rapidly and effectively than steers, producing leaner carcasses that are less variable in tenderness.

Most of the cattle from Hungary are air freighted at live weights of 60–70 kilograms. They are fed for 300–350 days to attain slaughter weights of 450–580 kilograms.

In Israel, beef consumption per person increased by 29 per cent to 18 kilograms between 2000 and 2006 (FAOStat 2007), reflecting an increase in demand for beef from a growing and more affluent population. In 2006, a self imposed ban on beef exports by Argentina reduced frozen beef supplies significantly. Prior to the ban, imports from Argentina accounted for 48 per cent of Israel's frozen beef imports in 2005. The ban ultimately benefited Australia as demand for live cattle from Israel increased. In addition, a 7.5 per cent depreciation of the Australian dollar against the Israeli shekel during 2006 further increased the attractiveness of Australian live cattle to Israeli feedlotter (Bank of Israel 2007). Australian live cattle exports to Israel more than doubled between 2005 and 2006, to around 80 000. As a result, Israel displaced Malaysia as Australia's second largest market for live cattle.

middle east

Exports of live sheep from Australia are principally destined for markets in the Middle East, including Saudi Arabia, Kuwait, Jordan, Bahrain and Oman. Saudi Arabia and Kuwait imported more than half of Australia's live sheep exports in volume terms in 2006-07 (figure i).

While Kuwait has been a continuous market for live sheep over the past ten years and currently imports 22 per cent of Australian sheep shipments, Saudi Arabia only emerged as an important market for Australian sheep after 2000. In 2003, Saudi Arabia imposed a ban on sheep imports from Australia but imports resumed in 2005. It currently accounts for nearly a third of Australia's exports (figure i). In 2006-07, Saudi Arabia imported almost 1.4 million sheep, 16 per cent more than in 2005-06, worth an estimated \$105 million.

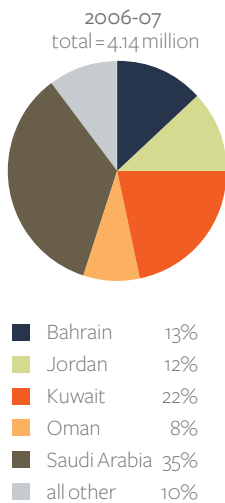
The Middle East is an oil rich region whose population enjoys a high standard of living. Demand for live animals in the Middle East stems from religious and cultural preferences (Shiell 2003), in contrast with many south east Asian countries where it is a consequence of the lack of refrigeration.

Demand for live sheep imports by the Middle East has been very strong over the past decade. Despite investment in intensive breeding units, domestic production is limited by the arid conditions of the region. While fresh water is plentiful as a result of heavy investment in desalination plants and subsidised supply, feed is largely imported. As a result, domestic production has been limited by the availability and cost of imported feed and the domestic supply of animals has been unable to satisfy demand.

Demand for live sheep is principally met through live imports from Australia, north Africa and Iran. Sheep from north Africa are cheaper than those from Australia and have therefore been more attractive in the past few years given the increasing price of Australian sheep. When adjusted for inflation, the Australian export price per animal increased by 35 per cent between 2000-01 and 2006-07 (figure j). One of the disadvantages of sheep from Africa, however, is that they are less likely to be free of disease. In the past this has led to short term bans on livestock imports from the Horn of Africa because of transboundary disease risks, including rinderpest, foot and mouth disease and rift valley fever (MLA 2007). Thus, while the recent lower price for sheep from Africa has shifted demand away from Australian livestock, the consistent quality of Australia's product on the world market, along with its low disease status, has helped to maintain Australia's presence in Middle East markets.

Over the past decade the governments of Bahrain and Kuwait have shielded consumers from the increasing price of imported live sheep by subsidising the price of sheep meat. Thus, the increasing price of imported Australian

i shares of australia's live sheep exports to the middle east



j australian sheep export price



sheep has been absorbed and the demand for live animals has continued to grow. However, only meat produced from animals slaughtered domestically are eligible for the subsidy. It does not apply to imported sheep meat. In Bahrain, imports of live sheep from Australia increased by 30 per cent between 2000-01 and 2006-07. Much of this increase occurred because of the proximity of Bahrain — where sheep meat is subsidised — to Saudi Arabia — where it is not. Saudi Arabians able to drive to Bahrain to purchase sheep meat have taken advantage of the price subsidy (Johar 2007).

The principal method of selling live sheep in the Middle East is in the 'souk', or traditional market, where animals are sold and slaughtered for their buyers. The animal is slaughtered in full view of the client and the meat from that animal is returned to the client. The client is assured that the meat they are receiving comes from their animal, that it has been slaughtered according to religious customs and that it is disease free (Johar 2007). Meat souks are found in larger cities and sell both fresh and frozen (imported) meat (Sunderman and Johns 1994).

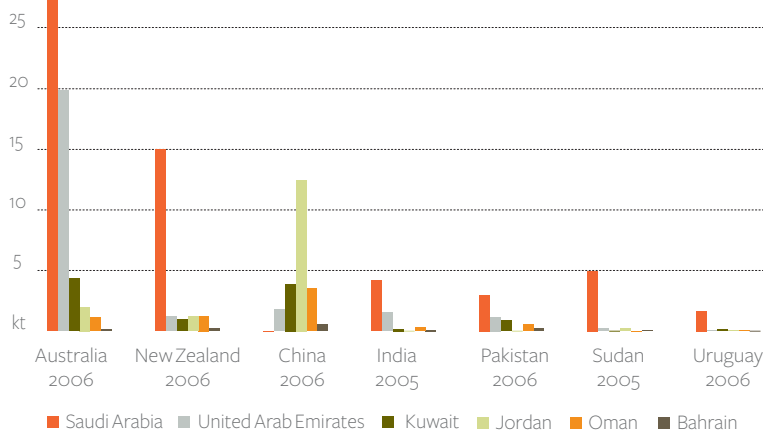
Meat is also sold through smaller, local butchers who slaughter and sell fresh meat from animals they themselves purchase daily. The practices of local butchers ensure that the carcasses and cuts being sold have been sourced from animals slaughtered on the day of sale. Such marketing characteristics are important to a large portion of consumers in the Middle East. Demand for freshly slaughtered sheep meat peaks during times of religious festivals such as the Muslim Hajj pilgrimage (MLA 2007).

As the demand for live sheep in the Middle East has increased in the past ten years, so too has the demand for sheep meat. The urban populations of many of the main importing countries are increasingly westernised and do not have the same demand for freshly slaughtered meat as do their rural counterparts. The demand for sheep meat has been met to a large extent by imports of frozen and chilled sheep meat from Australia, New Zealand, China, India, Pakistan, Uruguay and Sudan. Australia and New Zealand have historically been the largest two source markets for chilled and frozen sheep meat to the region (figure k), with sheep meat exports of \$186 million and \$63 million respectively in 2006. Exports of sheep meat to the Middle East from source countries are reported in lieu of imports because of incomplete reporting to UN Comtrade by Middle East countries. Values are converted to Australian dollars using an annual average exchange rate.

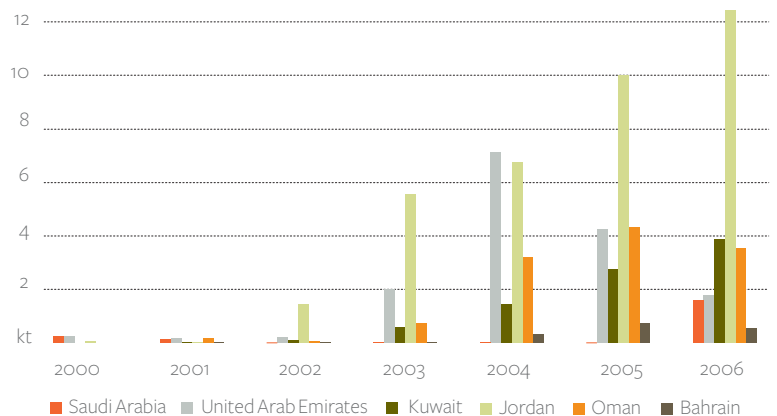
Growth in frozen sheep meat from China to the Middle East has been particularly strong in the past five years (figure l), mainly because of the price difference between Chinese and Australian product. In 2006, China was the third largest exporter of sheep meat to the region, with exports valued at \$56 million. Sheep meat exports from China to the Middle East are destined principally for Jordan (figure l), whereas Australian exports of sheep meat are destined mainly for Saudi Arabia and the United Arab Emirates.

Another factor affecting demand for sheep meat in the Middle East is the proportion of expatriates living in countries such as Saudi Arabia, Kuwait and Bahrain. In the United Arab Emirates (UAE), for example, only 10 per cent of the population are citizens. The citizens of the UAE have a preference for Iranian goat meat, whereas expatriates will buy sheep meat and are largely satisfied with imported frozen product (Johar 2007).

k australia's sheep meat exports to the middle east



l exports of sheep meat from china to the middle east



4 trade issues for australia

From the preceding country profiles, it is clear that Australia is a major supplier of cattle and sheep to a diverse group of countries. Australia's proximity to south east Asia makes it ideally suited to meet the demand for live cattle in that region. In addition, Australia's status as a country free from foot and mouth disease allows it to export to markets such as Indonesia that have domestic regulations in place banning imports from countries that are not free of foot and mouth disease, including India and Brazil. Demand from the Middle East for sheep, on the other hand, is based principally on Australia's ability to reliably deliver shipments of live animals of a specified standard.

Some of the issues that have promoted live exports rather than trade in meat are discussed in this chapter. These issues are principally demand driven rather than supply driven. That is, they emanate from Australia's export markets rather than from Australia. The nature of demand for livestock and for meat reflects the diverse cultures that exist within export markets — cultures whose preferences for meat and food in general have developed over time. The stage of economic development of the importing countries has also affected demand for meat and for livestock. For example, the lack of infrastructure for handling meat in south east Asia — in terms of storage and refrigeration — restricts demand for meat. Lastly, religious beliefs in some importing countries play a large part in determining how meat is supplied to its citizens.

animal welfare

The Australian Government has invested significant resources in addressing the animal welfare issues associated with trade in live sheep, cattle and other livestock. Despite these efforts, concerns about the handling of livestock before, during and after transit persist.

Australia's livestock exporting industry is closely regulated. The Department of Agriculture, Fisheries and Forestry has developed Australian Standards for the Export of Livestock (ASEL). ASEL outlines the requirements that need to be met for live sheep and cattle to be transported. As part of these standards, all exporters must be licensed by the Australian Quarantine and Inspection Service (AQIS).

In accordance with the *Export Control Act*, each consignment of livestock must be certified by AQIS prior to export, with exporters obtaining an

export permit. Obtaining an export permit requires the provision of a detailed ‘Notice of Intention’ and ‘Consignment Risk Management Plan’. Failure to meet these requirements can result in the loss of licence.

Handling facilities for livestock are also regulated. The premises used for preparing livestock for export must be registered with AQIS. Livestock ships must be approved by the Australian Maritime Safety Authority (AMSA) as meeting the requirements of Marine Order 43. Animals that travel by air must meet ASEL requirements as well as International Air Transport Association (IATA) live animal regulations.

According to AMSA Marine Order 43, all livestock ships are obliged to provide a continuous supply of water and fodder to the animals on board the ship. The amount of water required for various species is stipulated in ASEL and the calculated quantity is compared with the actual quantity before a health certificate is issued by AQIS. The same is true for fodder, which is normally comprised of pelletised grain/chaff or derivatives (Livecorp 2007).

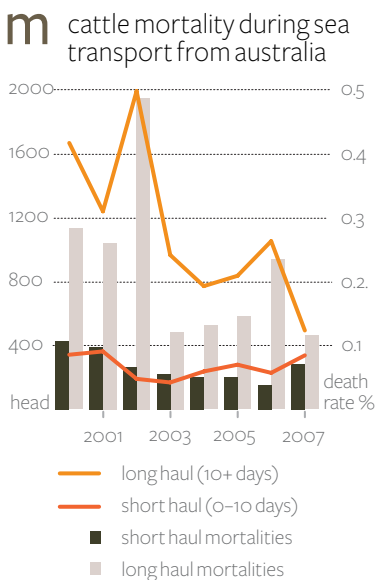
Along with the protocols from ASEL, Australia is also committed to other initiatives that improve the welfare of animals during transit. One example of such an initiative is the investment of \$3.5 million to improve the entire live export process chain, such as the infrastructure and training programs for workers in overseas facilities (Live Export Care 2006).

animal mortality

Exports to south east Asia are considered short haul voyages, with durations of less than ten days. Shipments to the Middle East take longer than ten days and are considered long haul voyages. According to Livecorp (2007) voyages to the Middle East take between fourteen and twenty-one days, voyages to Indonesia, the Philippines, Malaysia and the rest of south east Asia take between three and seven days and voyages to China, Japan or Korea take between ten and fourteen days.

Data on cattle and sheep mortality during sea transport from Australia are collected annually by AMSA from ship masters’ reports. Incorporated in the AMSA Marine Orders 43 are ‘trigger levels’ on mortality rates during long and short haul voyages. If these levels are reached, the ship’s master is obliged by law to report them to AMSA so that an investigation can be initiated. The trigger levels are 2 per cent for sheep, 1 per cent for cattle on long haul voyages and 0.5 per cent for cattle on short haul voyages.

The death rate for cattle in the past seven years (figure m) has been less than 1 per cent for both long and short hauls. Of the nearly 600 000 cattle exported from Australia in 2005-06, the mortality rate of those transported for less than ten days was less than 0.10 per cent (AMSA 2007).

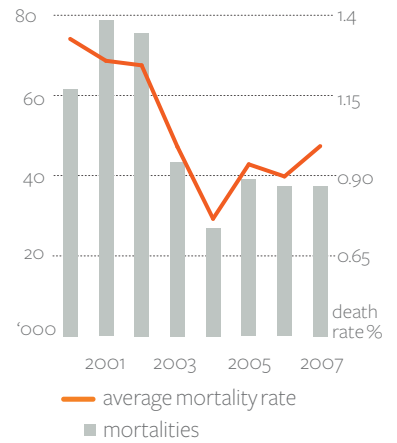


As explained in Norris and Norman (2006), for cattle that are transported not only to the Middle East but also to south east Asia, the main causes of deaths during transport are heat stroke (particularly for the *Bos taurus* breeds), trauma and respiratory disease.

For sheep that are mainly destined for the Middle East and therefore in transit for more than ten days, the mortality rate is higher than for cattle, although it has been declining since 2000. Since 2003, mortality rates for sheep have been less than 1 per cent (figure n).

Approximately 75 per cent of sheep deaths are caused by inanition (weakness, extreme weight loss and decreased metabolism because of insufficient food intake) and salmonellosis (an infection of the digestive tract). According to Norris and Norman (2006), risk factors for these deaths include failure to eat pelleted feed, source of sheep (type of pasture), age, time of year, fatness, duration between leaving the farm and unloading in the Middle East and excessive temperature and relative humidity.

n sheep mortality during sea transport from australia



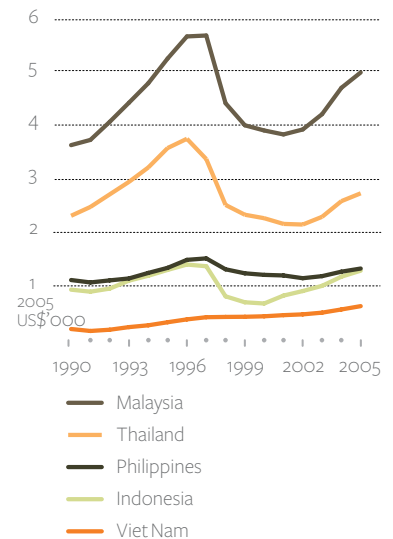
absence of refrigeration

In Asia there are different markets for beef that are segmented according to price as an indicator of quality. The higher price segment of the market is serviced by large supermarkets, high end hotels and restaurants. The medium price market is serviced by western style supermarkets, restaurants and US style hamburger chains (located principally in more urban areas). The lower price market is serviced by traditional supermarkets, meat vendors and 'wet markets'.

Wet markets are the traditional meat marketing system in Asia. They are characterised by the sale of fresh meat in open air stalls with little or no refrigeration. In many Asian markets, the fresh meat market is the only option available to consumers, particularly those outside urban areas. Without an adequate supply of cattle to these markets, consumers would purchase an alternative protein source. Chicken has traditionally been the main source of animal protein although, depending on location, fish is also an alternative.

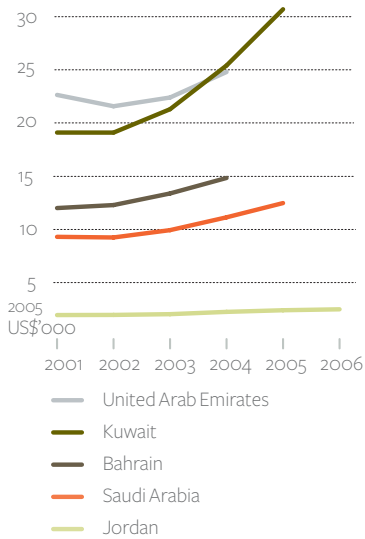
Since the early 1990s, growth areas for beef have been in higher and medium priced markets. This has been the direct result of increasing incomes per person in Asian countries (figure o).

o gross national income per person in south east asia



Despite the rapid pace of economic development in this part of the world in the past fifteen years, storage and refrigeration is not widespread. Refrigeration of meat is generally limited to the abattoirs, wholesalers and retailers that supply the higher and medium priced markets. The availability of refrigerated meat to less affluent urban areas and rural areas is limited.

P gross national income per person in the middle east



Note: For 2005 and 2006, no data were available for Bahrain and the United Arab Emirates. No data were available for Saudi Arabia or Kuwait in 2006.

The continued need to meet the demand for beef for each segment of the market is an important element of the domestic policies of south east Asian countries. This was made apparent by the initiatives taken in the early 1990s to develop feedlot sectors in Indonesia and Malaysia. One of the complications of supplying meat to the population as a whole is that the low price segment of the market exists more broadly throughout the country, not just in rural areas but also throughout urban areas. The general absence of refrigeration therefore necessitates that the supply of meat to these areas be carried out through the delivery of live animals that can be slaughtered close to the point of consumption.

In the Middle East, the absence of a cold chain is not as important an issue as it is in south east Asia. On average, per person incomes are higher because of the region's extensive oil resources (figure p). Similarly, the food distribution system is well developed, as is the general capacity of individuals to refrigerate fresh food (Johar 2007). The preference for fresh meat stems more from religion and local customs than from the lack of a cold chain.

religion

Some of the demand for live animals reflects religious traditions in export markets. In the Middle East and several south east Asian countries the predominant religion is Islam. Judaism is prominent in Israel. Under both religious traditions there are strict regulations that mandate how an animal must be slaughtered and how it must be treated before and after slaughter. Suppliers of meat, whether domestic or foreign, must abide by these regulations in order to sell into these markets. Some of the requirements under Islamic and Jewish traditions are outlined below.

halal

The Muslim faith requires that livestock be slaughtered in a manner consistent with Islamic law. The method is known as 'halal', an Arabic word meaning 'lawful', whereby every animal is slaughtered according to the Islamic ritual of zabiha. The zabiha ritual entails the slaughtering of animals by a Muslim who blesses the animal as he uses a sharp knife to make a single cut across the neck. By importing live cattle from Australia, livestock can be slaughtered according to halal requirements in local abattoirs that are already approved for this method. Australian abattoirs exporting beef to the principally Muslim countries of Indonesia, Malaysia and the Middle East must all be certified as meeting halal requirements.

In 2006, Australia exported 24 000 tonnes of beef and veal valued at \$107.5 million to predominantly Muslim countries (MLA 2007). In that year halal beef and veal accounted for only 2.2 per cent of total beef and veal exports (ABS 2007). Halal beef exports peaked in 2002, dropping significantly by

2004 owing to a fall in exports to Indonesia (figure q). Since 2004, total halal beef exports have slowly been increasing. In 2006, the largest importer of halal beef continued to be Indonesia, which imported nearly 16 000 tonnes, with a total value of \$51 million.

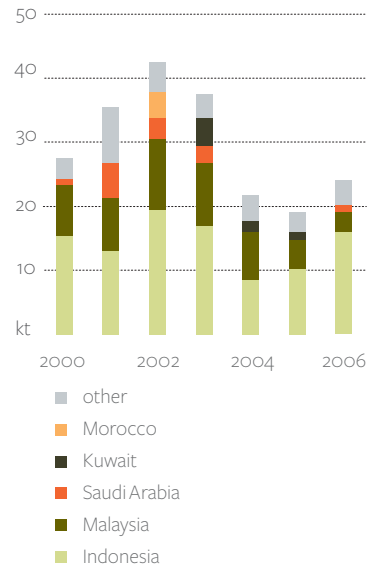
In 2006-07 Australia exported 87 000 tonnes of sheep meat valued at \$276 million to predominantly Muslim countries (ABS 2007), all produced according to halal requirements. Those exports accounted for approximately 22 per cent of total sheep meat exports (ABS 2007). Sheep meat exports to principally Muslim countries dropped significantly in 2003-04 when Saudi Arabia halted all imports from Australia (figure r). Shipments resumed in 2005 and total sheep meat imports peaked in 2006-07, reflecting demand from both Saudi Arabia and the United Arab Emirates, which jointly imported 53 000 tonnes of sheep meat, with a total value of \$175 million.

Animals that are slaughtered according to halal rituals in Australia must meet the following conditions:

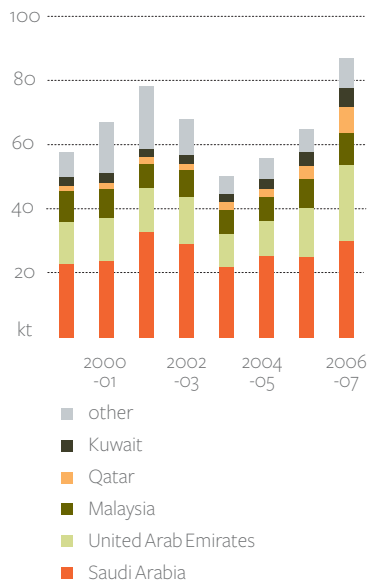
- processing operations must have an Australian Government Supervised Muslim Slaughter program
- processors must have a halal program that complies with the Australian Government Supervised Muslim Slaughter requirements
- the facility must be inspected and be suitable for halal slaughter and/or production — all inspections are carried out by the Australian Quarantine and Inspection Service and recognised Islamic organisations
- the processor must only employ registered Muslim slaughtermen
- non-halal product must not be processed in the same areas as halal product; similarly, halal and non-halal product must be separated and identified at all times
- equipment that has been in contact with non-halal product must be thoroughly cleaned
- all additives and ingredients used in any meat product must be halal
- only recognised Islamic organisations can certify halal meat and meat products for all exports (Aus-Meat Limited 1998).

Many Muslim countries are increasing their demands on the controls and procedures involved in producing halal meat. In Australia, all food processing operations must apply for halal accreditation with an approved Islamic organisation, for example the Halal Certification Authority.

q Australian halal beef exports to principally muslim countries



r Australian halal sheep exports to principally muslim countries



Proper accreditation is no guarantee that shipments will always be allowed. Some concerns about the proper slaughter of halal beef halted exports to Malaysia in August 2005. Complaints that slaughter methods did not meet Islamic standards at the Norvic Food abattoir in Wodonga, Victoria, were retracted in 2006 once religious and technical auditors from Malaysia inspected the site. Two other abattoirs, Tasman Meats in Brooklyn in Victoria and Stanbroke abattoir at Grantham in Queensland have since also been approved and exports to Malaysia have resumed (ABC Rural 2006).

The largest sheep meat processor in Australia is Fletcher International, which operates a large abattoir in Albany, Western Australia, and another in Dubbo, New South Wales. Because of the diverse countries to which Fletcher International ships sheep meat, all the animals are slaughtered halal so that demand for sheep meat by Muslims and non-Muslims in all markets can be met without requiring separate facilities.

kosher meat

Judaism requires that all foods be kosher, which means that it must meet all rules and standards of the Jewish faith. Kosher requirements for slaughtering livestock include the use of special equipment, such as a turning box (used to hold the animal still and at ninety degrees), as well as a larger slaughter team than would be used in western slaughter facilities. Some members of the slaughter team must be representatives of the Chief Rabbinate of Israel. The Rabbinate will approve a foreign slaughter plant as a source of imported meat following a visit by representatives of the Foreign Slaughter Division. These representatives ensure that the plant is suitable for kosher slaughter. The Rabbinate will only examine plants that have received prior approval from the Israel Veterinary Services (USDA 2001).

Kosher slaughter involves not only a particular method of slaughter but also a post slaughter judgment about the health of the animal. USDA (2001) lists some of the requirements:

- the use of an electric prod to herd animals into the slaughtering stand is forbidden, as is an electric current to accelerate the drainage of blood after slaughter
- stunning the animal prior to slaughter is forbidden
- the animal must be in a prone position (achieved with the assistance of a turning box) when slaughtered
- each animal must be numbered consecutively prior to the separation of the head from the carcass

- there must be a twofold examination of the animal's lungs — the first while still intact in the carcass and the second on removal from the carcass
- if the carcass is deemed to be of kosher status, it is stamped kosher and if it is graded as a higher quality meat, it is also stamped glatt
- cold storage of the slaughtered kosher carcasses must be separate from non-kosher meat.

5 discussion and conclusion

Development of Australia's livestock industries has occurred not only because of growth in domestic demand but also as a result of growth in foreign demand. Australian producers in Western Australia and the Northern Territory have developed an industry that responds to the specific consumer demands of south east Asia and the Middle East. Foreign demand has provided Australian sheep and cattle producers with a broader network of markets for which they have adapted their production methods, particularly in the west and the north of the country. Live export trade for these regions is a vital market outlet for these regions.

The future prospects for the Australian live export sector are likely to depend on several key factors. Continued population and income growth in the countries to which Australia currently exports live animals is expected to result in increased demand for beef and sheep meat as a more highly valued source of protein. However, the possibility that regions that produce cattle and sheep and currently have endemic foot and mouth disease, such as Brazil, could eventually be free of the disease represents some threat to Australia's ability to maintain its share of these markets. If this were to occur, Australia's market share in importing countries could be eroded by increased competition from lower priced livestock sourced from these countries. Improvements to the feedlot sectors of south east Asia may also influence Australia's share of the market in future.

A combination of transport and infrastructure logistics in importing countries, together with a range of cultural and religious practices, mean that there is currently a strong preference for live animals rather than chilled or frozen meat. Live animal exports to these markets are not perfect substitutes for exports of beef, veal and sheep meat. If that were the case, the current demand for chilled and frozen halal beef and sheep meat to south east Asia and the Middle East would probably be higher. Indeed, Middle East markets for both live sheep and sheep meat have been growing at similar rates as a result of the growth in urban centres and incomes. Regardless of this trend for sheep meat, however, growth in Australia's share of these markets will continue to depend on the trade in live animals. Any restrictions on this trade from Australia are therefore expected to have an adverse impact on the industry as the importing countries would source livestock from competing markets rather than substantially altering their demand for beef, veal or sheep meat.

economic implications of restricting exports of live animals

If Australia were to restrict live exports it is likely that there would be significant regional economic effects, particularly on the cattle industry of western and northern Australia and the sheep industry of Western Australia. It is generally accepted that there would not be a 100 per cent transfer of the industry from live animal sales to their meat equivalent, despite the potential that currently exists for sheep meat. This would result in a loss of farm income to producers currently specialised in the trade of live animals. The quantification of these potential economic losses was beyond the scope of this study.

For beef, the prospects for increased sales of carcasses and boxed beef to south east Asia and the Middle East appear limited. Challenges to be addressed include the lack of access to storage and refrigeration by a large proportion of the south east Asian populations. In addition, there are currently no halal certified abattoirs in the northern cattle producing region that could supply these markets.

The prospects for selling meat domestically from animals reared in the north and west also appear limited. The cattle reared for live export from the west and north are *Bos indicus* breeds. The meat from these animals is not what is demanded by Australian beef consumers. Meat from these animals is therefore unlikely to command a high price domestically.

Without a market for live *Bos indicus* breeds, producers may return to a form of production that existed prior to the opening of the south east Asian and Middle Eastern markets — producing cattle for low quality manufacturing beef that commands a relatively low price.

For sheep, the potential for the domestic market to absorb the surplus supply caused by a cessation in live sheep exports is limited. Domestic consumption growth may be affected by price declines in the short term but long term growth is largely related to population growth. Consequently, initiatives to supply halal sheep meat to foreign markets would have to be pursued more aggressively and the price of the product would have to fall in order to compete with lower priced competitors such as China and Uruguay. Unlike south east Asia, the Middle East is not as restricted by its food distribution system in terms of refrigeration. However, strong cultural preferences for fresh meat will continue to drive demand for livestock in the region and this demand is likely to be met by alternative suppliers, such as north Africa, rather than through a surge in frozen sheep meat imports.

conclusion

Continued population and income growth in south east Asia and the Middle East is expected to result in increased demand for live cattle and sheep imports. Australia has secured its current share of this market for live cattle and sheep largely because it is free of diseases such as foot and mouth disease and has a reputation for delivering reliable quality compared with competing suppliers.

Australian shipments of live cattle and sheep are meeting the specific demands of other countries. The countries that demand live sheep and cattle from Australia are varied in their stages of economic development, cultures, religions and diet. Given the stage of economic development of the south east Asian countries, it is unlikely that the nature of demand from these markets will change in the near future. What is apparent is that demand is highly sensitive to changes in relative prices. As demonstrated in the country profiles, a depreciation of domestic currencies relative to the Australian dollar or an increase in the saleyard price of Australian cattle can have a profound effect on demand. For sheep, the increase in Australian export prices led to a shift to alternative suppliers of sheep, including north Africa.

While the cultural and religious differences between Australia and the countries to which it exports live animals can perhaps be influenced by Australia — for example, in terms of its preferences for the handling of live-stock — they are unlikely to be changed. If Australia ceases to ship live cattle and sheep to south east Asia and to the Middle East, there is likely to be a significant effect on some of the regional economies of Western Australia and the Northern Territory, although the magnitude of the potential losses is as yet unknown. What is known is that these market losses would stem from the substitution of demand of current export markets to alternative sources of supply. That is, countries that currently import live sheep and cattle from Australia are unlikely to substitute their demand for live animals to beef, veal or sheep meat. Rather, they are likely to source the animals from elsewhere. This transfer of demand would be expected to result in economic losses to the industry and surrounding regional communities.

Further analysis is required to quantify the extent of the losses associated with the potential cessation of live export trade. Areas requiring a closer assessment include the potential loss in producer income and to the regional cattle industry more broadly. The flow-on effects to regional communities as well as other industries — such as road and sea transport — also need to be taken into account. Further, as a consequence of any restriction on livestock trade, there may be requests by industry for government assistance to support any transition to alternative activities.

appendix **A**ustralian ports of loading for cattle

5 loadings of australian live cattle for export, by port

	2000	2001	2002	2003	2004	2005	2006
	no.	no.	no.	no.	no.	no.	no.
Adelaide	14 865	659	11 706				
Adelaide/Fremantle	7 338	30 005		8 664			
Adelaide/Fremantle/Port Hedland		9 432					
Adelaide/Port Hedland		7 753					
Adelaide/Portland		13 291					
Adelaide/Portland/Fremantle		8 823					
Brisbane	11 090	15 257	14 434	20 599	16 842	24 372	
Broome	76 627	72 103	67 483	74 880	76 085	56 548	45 632
Broome/Darwin				2 889	14 604		32 373
Broome/Fremantle			6 927	8 936		14 091	
Broome/Fremantle/Darwin							15 076
Darwin	246 311	206 060	301 299	257 252	178 563	156 374	165 645
Darwin/Broome							25 407
Darwin/Fremantle		8 424	7 430				32 803
Darwin/Fremantle/Townsville			15 886				
Darwin/Townsville			868				
Darwin/Wyndham		5 746	2 554				
Darwin/Wyndham/Broome						18 719	
Devonport	5 606		16				
Devonport/Adelaide		2 972					
Devonport/Fremantle/Portland			1 727				
Devonport/Port Adelaide					567		
Devonport/Portland			716	591		502	
Darwin/Townsville							17 280
Fremantle	74 658	96 729	102 864	74 435	79 560	73 414	93 036
Fremantle/Adelaide		677	35 207	22 365			
Fremantle/Adelaide/Portland			20 901				
Fremantle/Darwin	6 623	19 893					

continued..

5 loadings of australian live cattle for export, by port *continued*

	2000	2001	2002	2003	2004	2005	2006
	no.	no.	no.	no.	no.	no.	no.
Fremantle/Esperance	2 840						
Fremantle/Port Adelaide							
Fremantle/Port Hedland	14 145	17 307	8 449				
Fremantle/Portland		6 677	46 609	11 327	14 377	15 476	19 844
Fremantle/Portland/Townsville			15 955				
Fremantle/Townsville	29 662	15 046	32 985				
Geraldton	16 027	12 357	25 945	23 916	35 440	27 123	22 791
Geraldton/Darwin						7 446	
Karumba	48 851	33 604	37 963	37 559	9 866	7 909	
Lae			1 365				
Mourilyan	3 936	4 796	2 868	977	2 046	977	
Port Adelaide					764		
Port Adelaide/Fremantle				9 483	17 947	7 103	8 034
Port Botany				19	14	4	
Port Botany/Brisbane				9			
Port Hedland	32 808	20 301	15 171	13 694	22 135	7 141	
Port Hedland/Darwin		16 116					
Port Hedland/Fremantle	9 063						
Portland	4 469	18 809	11 317	35 220	60 496	21 114	7 653
Portland/Adelaide		3 588					
Portland/Devonport							786
Portland/Fremantle	15 428	11 063	141	9 099	22 799	18 566	12 490
Portland/Port Adelaide							
Sydney		17					
Townsville	68 191	49 440	104 616	61 023	3 742		
Townsville/Darwin							13 351
Townsville/Wyndham/Darwin					18 329		
Weipa	5 218	5 975	2 716	2 362	1 200		
Wyndham	54 165	50 429	57 636	56 404	44 350	32 371	
Wyndham/Broome		1 704					21 755
Wyndham/Darwin					41 989	73 799	
Wyndham/Fremantle	4 460						
total	752 381	765 053	953 754	731 703	661 715	563 049	533 956

Note: The data do not separate the number of head loaded at each port for multiple loading ports.

Source: AMSA (2007).

appendix **B** Australian ports of loading for sheep

6 loadings of Australian live sheep for export, by port

	2000	2001	2002	2003	2004	2005	2006
	no.	no.	no.	no.	no.	no.	no.
Adelaide	134 399	130 046	263 794	64 725			
Adelaide/Fremantle	309 282	1 273 266		116 842			
Adelaide/Fremantle/Port Hedland		76 399					
Adelaide/Port Hedland		62 977					
Adelaide/Portland		11 122					
Adelaide/Portland/Fremantle		67 457					
Brisbane							
Broome	6 355	6 153	4 392	7 481	6 501	6 298	2 368
Broome/Darwin					476		
Broome/Fremantle			2 155	34 669		166 418	
Broome/Fremantle/Darwin							1 613
Darwin	143	186	2 003	977			227
Darwin/Broome							
Darwin/Fremantle		65 462	69 009				618
Darwin/Fremantle/Townsville			11 572				
Darwin/Townsville							
Darwin/Wyndham		746					
Darwin/Wyndham/Broome							
Devonport			52 345				
Devonport/Adelaide		54 361		98 987			
Devonport/Fremantle/Portland			75 449				
Devonport/port Adelaide					75 980		
Devonport/Portland			68 824	76 158		71 514	
Darwin/Townsville							
Fremantle	3 257 539	2 703 412	1 969 616	1 462 178	2 101 296	2 917 427	2 869 436
Fremantle/Adelaide		49 087	1 662 138	828 622			
Fremantle/Adelaide/Portland			49 787				
Fremantle/Darwin	69 876	60 349					
Fremantle/Esperance							

continued...

6 loadings of australian live sheep for export, by port *continued*

	2000	2001	2002	2003	2004	2005	2006
	no.	no.	no.	no.	no.	no.	no.
Fremantle/Port Hedland	107 803	150 725	70 085				
Fremantle/Portland		51 426	1 108 813	697 136		44	70 087
Fremantle/Portland/Townsville			9 856				
Fremantle/Townsville	8 054	10 458	37 339				
Geraldton	2 817	5 562	3 904	6 004	9 598	11 745	2 483
Geraldton/Darwin						521	
Karumba							
Lae							
Mourilyan							
Port Adelaide					66 885	143 249	
Port Adelaide/Fremantle				206 378	648 915	318 910	62 225
Port Botany							
Port Botany/Brisbane							
Port Hedland	8 494	875	1 210	240		1 178	
Port Hedland/Darwin							
Port Hedland/Fremantle	34 780						
Portland	436 156	632 191	528 927		70 226	111 449	
Portland/Adelaide		48 494					
Portland/Devonport							71 309
Portland/Fremantle	126 394	796 366	77 158	624 548	658 536	397 003	793 090
Portland/Port Adelaide							71 783
Sydney							
Townsville			1 326	1 355			
Townsville/Darwin							554
Townsville/Wyndham/Darwin							
Weipa	622						
Wyndham				40			
Wyndham/Broome							
Wyndham/Darwin							
Wyndham/Fremantle	50 475						
total	4 553 189	6 257 120	6 069 702	4 379 920	3 638 413	4 145 756	3 945 793

Note: The data do not separate the number of head loaded at each port for multiple loading ports.

Source: AMSA (2007).

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RESEARCH FUNDING ABARE relies on financial support from external organisations to complete its research program. As at the date of this publication, the following organisations had provided financial support for ABARE's research program in 2006-07 and 2007-08. We gratefully acknowledge this assistance.

02.08

Asia Pacific Economic Cooperation Secretariat	Meat and Livestock Australia
Association of Southeast Asian Nations – secretariat	Murray Darling Basin Commission
AusAid	National Australia Bank
Australian Centre for Excellence in Risk Analysis	NSW Sugar
Australian Centre for International Agricultural Research	Rural Industries Research and Development Corporation
Australian Fisheries Management Authority	University of Queensland
Department of Climate Change	Wheat Export Authority
Australian Government Department of the Environment, Water, Heritage and the Arts	
Australian Government Department of Resources, Energy and Tourism	
Australian Government Department of Prime Minister and Cabinet	
Australian Government Department of Infrastructure, Transport, Regional Development and Local Government	
CRC α- Plant Biosecurity	
CSIRO (Commonwealth Scientific and Industrial Research Organisation)	
Dairy Australia	
Department of Business, Economic and Regional Development, Northern Territory	
Department of Primary Industries, Victoria	
Fisheries Research and Development Corporation	
Fisheries Resources Research Fund	
Forest and Wood Products Research and Development Corporation	
Grains Research and Development Corporation	
Grape and Wine Research and Development Corporation	
Independent Pricing and Regulatory Tribunal	
International Food Policy Research Institute	