



# **Competitive Industry Report on the Indonesian Cattle and Goats Sectors: Opportunities for Canadian Animal Genetics**

## **\*Abbreviated**

Prepared for:

**the Embassy of Canada in Indonesia  
and  
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This report contains market information collected by Stanton, Emms & Sia.  
The Government of Canada assumes no liability for the accuracy and reliability of the market information and intelligence provided herein.

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## The Indonesian Cattle and Goat Sectors

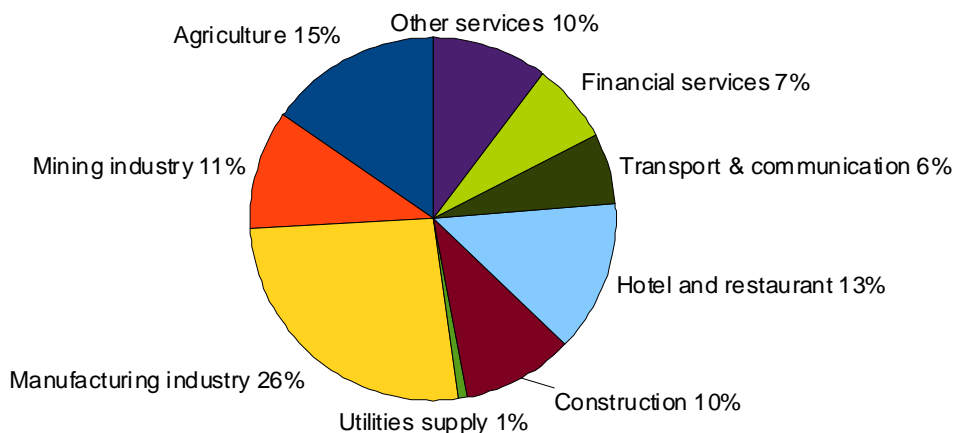
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### 1. Indonesia in profile

#### 1.1 Economic performance

Indonesia's GDP growth was reported at 4.5% in 2009 (4.8% in 2004), successfully emerging from the 2008/2009 global financial crisis, largely as a result of strong domestic demand. It should be noted that Indonesia's main economic activities are concentrated in Java which contributed 57.6% to the country's growth in 2009, followed by Sumatra which contributed 23.5% in 2009. The structure of the GDP by industry is provided by the Chart below.

**Structure of GDP by Industry (2009)**



Source: Statistics Indonesia

Agriculture, mining and manufacturing together contributed 52% of the country's GDP in 2009. Economic commentators project Indonesia's economy to grow by 5.5% in 2010 and 6.5% in 2011, on the back of continued strong domestic demand and improving exports.

These forecasts are positive for Indonesia's future direction over the next two to three years, providing the political environment continues to remain stable and the government continues to implement policies that support the business environment in Indonesia.

#### 1.2 Population in overview

Indonesia is the world's fourth most populous nation and the world's largest Muslim nation. It had an estimated population of around 231.4 million people in 2009. The population is projected to grow by about 1.2% per annum over the period to 2014.

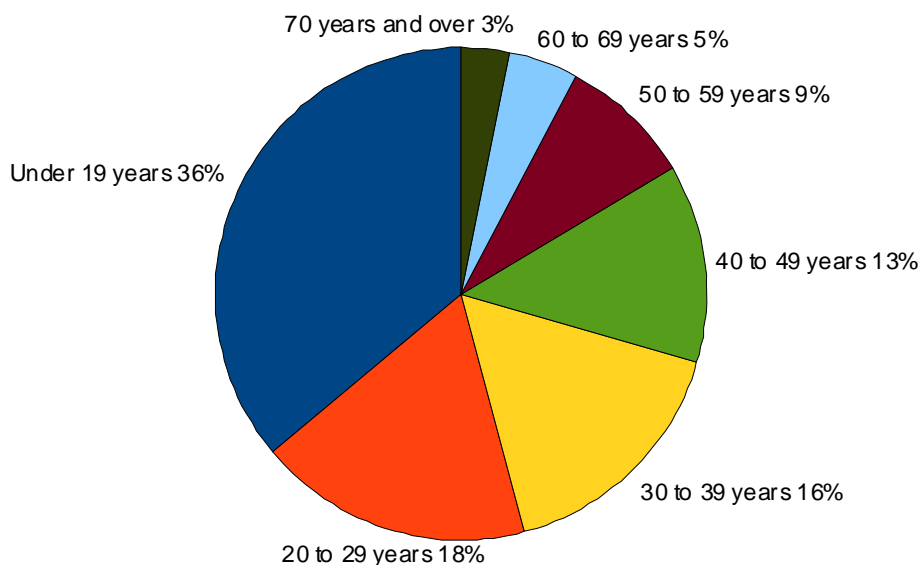
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According to the projection made by Statistics Indonesia, the population is forecast to grow to 245 million people by 2014.

Indonesia has a predominantly young population. Over 54% of Indonesia's population is aged 29 years and under. (see Chart below).

**Population by Age Group (2009)**



Source: Statistics Indonesia

Its large pool of young population is very positive for Indonesia's future as conditions of continued economic growth provide continuous employment opportunities and hence consumption. These young persons are tomorrow's large pool of consumers, which will continue to expand the country's demand for meat and dairy products into the foreseeable future.

The GDP per capita in 2009 amounted to C\$2,700 (2000: C\$825), according to Statistics Indonesia. Income growth over the years has boosted consumer demand nationwide which consequently has affected food consumption patterns within the average households.

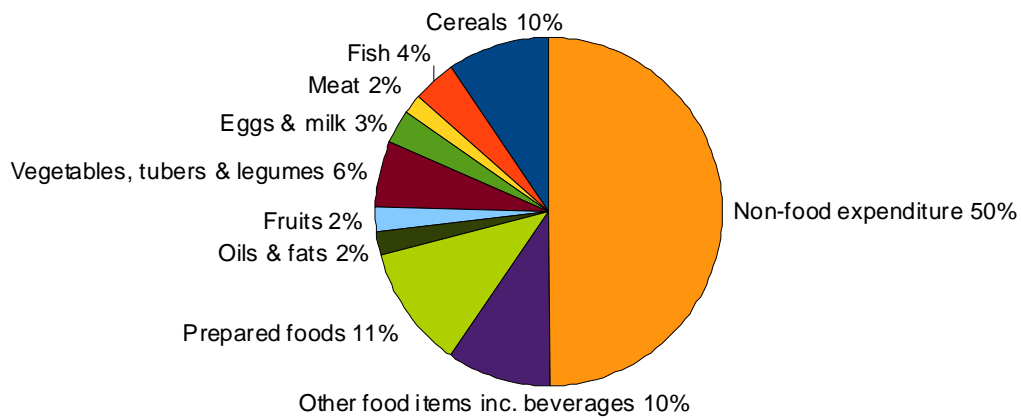
In particular, per capita consumption of livestock products increased from 1.33 kg for meat, 1.43 kg for eggs and milk in 1999 to 2.22 kg for meat and 2.96 kg for eggs and milk in 2009 while consumption of cereals fell from 25.04 kg in 1999 to 22.06 kg in 2009. This indicates a rapid growth in consumption of meat of 7% per annum and 10% per annum of eggs and milk over the ten years to 2009, at the same time that consumption of cereals slowly declined at around 1% per annum over the same period.

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The Chart below provides more information on the types of expenditure incurred by the average household on food items in 2009.

Percentage of Average Monthly Household Expenditure by Commodity Groups (2009)



Source: Statistics Indonesia

In 2009, the average household spent 50.62% of its disposable income on food and 49.38% on non-food items. It should be noted that meat and milk products form a small proportion of household expenditure.

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The Table below shows the per capita consumption of livestock products in 2009.

<b>Per Capita Livestock Products Consumption (Kilograms)</b>	
	<b>2009</b>
Beef	1.18
Buffalo	0.09
Goat	0.15
Mutton	0.12
Pork	0.55
Chicken	2.97
Other poultry	0.08
Other meat	1.33
Eggs	5.61
• Local dairy products	2.50
• Imported dairy products	7.03
Total dairy products	9.53
Source: Directorate General of Livestock Services	

The main livestock products consumed by Indonesians are dairy products and eggs, with chicken being the main meat consumed. Meat does not form a large part of the daily diet of the majority of Indonesian consumers.

Trade sources comment that:

- meat is an expensive product for most consumers and is mainly consumed by the middle and high income group. However, milk is purchased by families with children less than 5 five years old, although it is now becoming a regular product in the middle to high income households in the Jakarta conurbation;
- low levels of domestic supply and the relatively high retail price of meat has kept Indonesian meat consumption low. Trade sources also add that, as an example, beef is retailed at around Rp 40,000 (C\$4.50) per kilogram to Rp 50,000 (C\$5.60) per kilogram, depending on the quality of the cuts, which acts as a barrier to increased consumption of beef for the majority of Indonesians;

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- in the rural areas, meat is only consumed on special occasions, such as weddings, births, religious celebrations and other important events, when consumption of meat such as beef, goats and chickens are at the highest;
- residents in Jakarta (on Java island) and West Java form the largest consumer base for beef. Government sources indicate that the per capita consumption of beef is around 7 kg for consumers residing in the Jakarta conurbation, where beef is consumed on a relatively regular basis; and
- demand for higher quality imported beef also exists from establishments such as high end hotels, restaurants, supermarkets and other high end food retailers.

### **2. Indonesia's livestock sector in overview**

Livestock farming is still a relatively small but developing sector within the nation's agricultural sector. It only contributed around 12% of the total agricultural sector's gross domestic production in 2008. Around 4% of Indonesia's working population was employed by the livestock sector in 2008.

The livestock sector remains highly fragmented and is distributed all over the nation, dominated by numerous small-holder farms. Only a small number of larger commercial farms exist that are operated by large businesses which target the large concentrated consumer market on Java.

The livestock sector is currently dominated by poultry farming with the ruminant sub-sector being substantially smaller. The Table below shows the livestock population in the period from 2005 to 2009.

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Livestock Population ('000 Heads)					
	2005	2006	2007	2008	2009*
Ruminants:					
• Beef cattle	10,569	10,875	11,515	12,257	12,603
• Dairy cattle	361	369	374	458	487
• Buffalo	2,128	2,167	2,089	1,931	2,046
• Goat	13,409	13,790	14,470	15,147	15,656
• Sheep	8,327	8,980	9,514	9,605	10,472
Total ruminants	34,794	36,181	37,962	39,398	41,264
Total non-ruminants, e.g. pigs **, horses and rabbits.	7,188	6,616	7,820	7,979	8,779
Total poultry	1,207,338	1,221,295	1,318,067	1,301,452	1,352,369
Notes: * Preliminary figures. **: Around 95% of this category comprises pigs. Source: Directorate General of Livestock Services					

In 2009, Indonesia had around 12.6 million beef cattle, 0.5 million dairy cattle and 15.5 million goats. Some key points to note are as follows:

- dairy cattle showed the fastest growth in the period from 2005 to 2009, at around 7% per annum;
- the number of beef cattle which grew at 4% per annum over the same period; and
- the goat population grew slowly by 3% per annum in the same period.

The Table below shows the production output of the livestock sector from the period from 2005 to 2009.

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<b>Livestock Production Output ('000 Tonnes)</b>					
	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009*</b>
Ruminants slaughtered:					
• Beef cattle	359	360	340	393	405
• Buffalo	38	44	42	39	41
• Goat	51	65	64	66	69
• Sheep	47	75	57	47	54
Total ruminants slaughtered	495	544	503	545	569
Non-ruminants slaughtered, mainly pigs.					
	175	198	228	212	222
Poultry slaughtered	1,147	1,285	1,340	1,381	1,391
Fresh milk produced ('000 Tonnes)					
Dairy cattle	536	617	568	647	679
Note: * Preliminary figures Source: Directorate General of Livestock Services					

The poultry sub-sector produced the largest quantities of meat, amounting to almost 1.4 million tonnes in 2009, up from 1.1 million tonnes in 2005.

The ruminant sub-sector produced only around 0.6 million tonnes of meat in 2009, up from 0.5 million tonnes in 2005, with beef forming over 70% of the meat produced by this sub-sector, while goat meat only formed 12% of the meat produced by this sub-sector.

Commercial livestock and poultry productions are largely centred in Java and Sumatra. According to the Directorate General of Livestock Services (DGLS), the island of Java has the largest concentration of cattle (meat and dairy) with about 45% of the nation's herd, followed by Sumatra with about 20% and Nusatenggara (NTT) and Sulawesi having about 10% each.

Goat farms are mainly concentrated in Central Java.



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### 2.1 Beef cattle farming

The majority of Indonesia's 12.6 million head of cattle are owned by around 6.5 million farmers residing in the rural areas. Most of these farmers only have a rudimentary knowledge of animal husbandry.

Many of the farmers are also of senior age with an elementary education. Indonesia's traditional beef production sector is based around low productivity, small-holder, operations.

Trade sources comment that more than 80% of cattle farms in Indonesia are owned by small-holders today. This is partly a result of the government's past focus on the development of small-holder livestock farming systems, as part of the on-going efforts to improve the economy of the rural community as well as improve the nation's food security.

Farms have also remained small largely because of the prevailing attitude of rural folk towards cattle farming as a secondary source of income. As a result, the majority of the farmers own between two to three head of cattle.

Cattle farming forms an important, but secondary, part of the farmer's occupation. Cattle are generally viewed as an asset which can be readily turned into cash for family emergencies and as a source of meat for social events such as religious festivals, weddings and other celebratory events.

Breeding cattle are held mainly to produce calves for sale to feed lots for fattening and to produce manure for crops. Traditional beef cattle farms practice an extensive free grazing and penned or leashed systems, involving a low-input, low-output production system, which results in a low beef production rate.

Trade sources also comment that nationwide beef productivity is low because of the low reproductive rate of local cattle, caused by low fertility, low calving and high calf mortality, resulting in the slow expansion of the national herd. In addition, farmers regularly sell productive females. With about 10% to 30% being sold and slaughtered annually, despite the government's regulation against the slaughter of productive females, this has further slowed down the expansion of the national herd. All these factors constrain domestic beef production.

In 2009, 2.04 million head of domestic cattle were slaughtered, in addition to around 0.4 million head of imported cattle, to meet the market's demand for beef.

To meet rising demand for beef, Indonesia's domestic beef market is increasingly being supplied by imported live cattle purchased from Australia. The government has been encouraging the development of cattle breeding in attempts to build up the national herd but most cattle breeders remain traditional farmers who view cattle breeding as a secondary farm activity.

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A small but growing number of larger cattle farms with over 50 head of cattle exist where land is plentiful, particularly in Sumbawa where farmers own individual grazing land. Some key points to note on this are as follows:

- cattle ownership per farmer is generally larger, depending upon the size of grazing land allocated to the farmer. Natural grass is the major component of feed; and
- these farmers receive support from the government's various programs to help improve the farmers' productivity. They include the provision of artificial insemination (AI) services, veterinary services, credit schemes and other extension services to assist breeders and feed lots involved in fattening up cattle for sale to the end markets.

Artificial insemination (AI) on cattle was started in Indonesia in 1976. The DGLS has been conducting progeny tests to produce quality dairy and beef cattle genetics that are better suited for Indonesia's environment.

The Directorate of Animal Breeding (DAB), under the DGLS, operates central bull and buffalo stud centres and AI stations, both in Java, for the production of frozen beef, buffalo and dairy semen for distribution across the country.

DAB control breed improvement at the central level through bull selection, the importation of genetics in the form of embryos, semen or breeding animals. It has separate divisions dealing with dairy and beef cattle, buffalo and poultry.

The Table below shows the import data for bovine semen from 2004 to 2008.

<b>Import of Bovine Semen</b>					
<b>Origin</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
Australia	34,962	7,782	0	0	0
New Zealand	0	2,411	0	0	15,611
USA	0	29,127	45,241	36,375	144,555
United Kingdom	0	0	0	0	13,768
<b>FOB Value (US\$)</b>	<b>34,962</b>	<b>39,320</b>	<b>45,241</b>	<b>36,375</b>	<b>173,934</b>

Note: Quantities not provided. Trade statistics for 2009 were not available at the time of writing this report.  
Source: Government Trade Statistics

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In the period to 2008, only four countries exported bovine semen to Indonesia. The United States of America has been a consistent supplier of bovine semen over the period to 2008.

Trade sources indicated that imported bovine semen is largely used to improve the genetics of local cattle as the local AI centres have sufficient stock of bovine semen for the national herd.

Trade sources indicated that the majority of beef cattle farmers, unlike dairy farmers, do not use AI to expand their herd size. AI is practiced mainly by beef cattle farmers in Central Java and East Java. Beef cattle farmers prefer semen from superior bulls like Simmental, Limousin, Brahman, Charolais, Hereford and Brangus. Most farmers use 'Peranakan Ongole' (PO) females, primarily because of their widespread availability.

Trade sources comment that:

- the average daily weight gain (ADWG) of calves produced from PO females is very low at about 0.6 kilograms;
- by contrast, the ADWG of calves born to crossbred females with semen from superior crossbred bulls is 1.2 kilograms or higher;
- because of the above, small-holder breeders increasingly prefer crossbred females to PO females as the calf produced exhibit higher initial weight and ultimately higher ADWG; and
- small-holder feed lots tend to choose these calves because their higher productivity makes cattle fattening more profitable as the slaughtered cattle produce a higher proportion of meat to bone weight.

Cattle breeding in Indonesia is still largely undeveloped. In 2008, there were only six units of cattle breeding operations in Indonesia.

Follow-up on this with trade sources indicates that the business community is generally averse to entering the cattle breeding industry. They added that the main barriers to entry include the following:

- high entry cost in terms of capital investment required;
- longer period before returns are realised due to longer time needed to raise calves before being ready for the market;
- low efficiency of local livestock's reproduction due to long calving intervals;
- limited availability of superior male cattle; and

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- higher risk of exposure to potential epidemic problems like Foot and Mouth Disease.

Attempts to increase the national herd using imported cattle for breeding have not been very successful mainly because of unattractiveness of the cattle breeding business to the industry sector. The Table below shows that the import of live cattle for breeding purposes was erratic from 2004 to 2008.

<b>Import of Live Pure-Bred Bovine, for Breeding (Head)</b>					
<b>Origin</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
Australia	2,500	0	0	20	210
New Zealand	0	150	0	0	1,180
<b>Total (Head)</b>	<b>2,500</b>	<b>150</b>	<b>0</b>	<b>20</b>	<b>1,390</b>
<b>FOB Value (US\$)</b>	<b>992,265</b>	<b>181,972</b>	<b>0</b>	<b>65,476</b>	<b>2,921,944</b>
<small>Note: Trade statistics for 2009 were not available at the time of writing this report. Source: Government Trade Statistics</small>					

Trade sources comment that the domestic beef market today is supplied with 60% from native cattle and 40% from imported feeder cattle. Indonesia has in recent years been importing about 70,000 tonnes of beef and about 500,000 head of cattle annually, mostly from Australia and New Zealand.

The rapidly increasing demand for beef has accelerated the import of feeder cattle into Indonesia. This is in response to the perennial shortage in supply of local cattle for the beef market.

Imports of feeder cattle have been rapidly increasing by about 16% per annum for the period from 2004 to 2008, as shown by the Table below. In 2008, 644,639 head of feeder cattle, valued at US\$344.8 million (FOB basis), were imported solely from Australia.

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<b>Import of Live Bovine, Not for Breeding (Head)</b>					
<b>Source</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
Australia	356,138	347,767	387,438	520,501	644,639
USA	0	0	7,148	0	0
<b>Total (Head)</b>	<b>356,138</b>	<b>347,767</b>	<b>344,586</b>	<b>520,501</b>	<b>644,639</b>
<b>FOB Value (US\$)</b>	<b>152,190,515</b>	<b>159,543,144</b>	<b>186,516,587</b>	<b>281,118,335</b>	<b>344,788,824</b>
Note: Trade statistics for 2009 were not available at the time of writing this report. Source: Government Trade Statistics					

Trade sources indicated that in 2009, around 700,000 head of feeder cattle were imported from Australia, the highest number imported into Indonesia in any year.

Australia is the major supplier of live cattle and beef products to Indonesia.

Australia's position as the dominant supplier of live cattle largely reflects:

- its close physical proximity to Indonesia;
- the ability of Australian cattle to acclimatise to tropical conditions in Indonesia;
- Australia's disease free status; and
- the close business relationships that Australian businesses have developed with their Indonesian counterparts over the years. These relationships also exist on a government to government basis, which includes Australian state and federal government departments and agencies.

The cattle that flourish in northern Australia are Brahmin and Brahmin crosses which are predominantly exported to Indonesia. Indonesia prefers high grade Brahman cattle or a minimum of 70% Brahman content cattle, due to their high level of heat tolerance, their adaptability to hot climates, resistance to ticks, low fat content and good performance in the Indonesian feedlots, resulting in a high yielding carcass.

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Trade sources estimated that 75% of cattle imported into Indonesia are destined for feedlots, with a target intake weight of between 280 to 350 kilograms or approximately 320kg live weight. Australia also exports to Indonesia heavier finished cattle that are over 400kg, which are sent directly to slaughter.

Indonesia's beef cattle production systems are changing to feedlot systems in response to the growing beef market. In recent years, there has been considerable investment into large-scale commercial feedlots and in the associated infrastructure such as yards, loading and unloading facilities and dedicated transport ships to move live cattle from northern Australian ports to Indonesia.

These feedlot businesses are located in areas near urban centres where the main beef demand bases can be found. Calves are fattened for the market, using crop by-products and agro-industrial by-products such as brewer's grain, corn starch by-products, cassava and pineapple wastes or sugarcane tops, combined with rice bran or oilseed cake. Domestic producers commented that this feedlot business is considerably more profitable than cattle breeding business.

Cattle fattening is a relatively new form of intensive cattle production, which is predominantly found on Java and some of the Eastern Islands. Feedlot operations by large companies commenced in 1990 when the government permitted feeder cattle imports from Australia. Today, there are a number of feedlots on Java and Sumatra which import Australian cattle, and a small number located in South Kalimantan.

Most of the major feedlot businesses are located on Java island, especially in Central Java, Jogjakarta area and East Java. Java island is the located of about 45% of the nation's beef cattle herd. This situation exists because the bulk of the beef cattle are destined for the Jakarta (capital city) market, which is the main market for beef in Indonesia.

Trade sources indicated that the majority of the 500,000 head of cattle that Australia exports to Indonesia annually is supplied to the Jakarta market.

The commercial feedlot industry has a number of advantages in beef production relative to small-holder producers:

- economies of scale resulting in a relatively low unit cost of production;
- access to readily available good-quality forage and concentrate at reasonable prices, with the major component of feed being concentrate;
- employment of professional management of livestock, proper nutrition and animal healthcare; and

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- access to imported feeder cattle with the right specification (age, weight, breed), which perform well in the feedlot environment.

In addition to buying domestic calves, feedlots also import calves from northern Australia to supplement their stock.

Trade sources advised that it only takes six months for the feedlot businesses to fatten up the calf before it is ready for the market. By comparison, Indonesian breeders require almost two years to raise a calf. They also comment that breeders with a herd of 500 cattle could earn Rp 1,005,000 (C\$112) per head per year, while feedlot operators with a herd of the same size earned Rp 1,362,000 (C\$152) per head every six months.

The major constraint on feedlot expansion is the supply of suitable live cattle from Australia. Additionally, the output and profitability of commercial feedlots are highly sensitive to the price of imported live cattle from Australia.

Industry sources commented that the feedlot capacity is expected to increase in the near future, in response to growing consumer demand for beef. They added that most of the growth was seen amongst the well-established companies, with a few new entrants into the industry.

The concentration in feedlot growth was found in Lampung, Jakarta and Bandung, which are the main cattle farming areas surrounding the Jakarta conurbation.

At present, Indonesia's commercial feedlots are highly dependent on live feeder cattle imports from northern Australia. Trade sources estimate that up to 85% of the cattle in feedlots on Java are imported Australian cattle. Northern Australia has remained the major supplier of large, consistent lines of Brahman cattle that are free from foot-and-mouth disease and meet the tight specifications for feedlot entry.

### 2.2 Dairy farming

Dairy farming is an established small-holder based industry in Indonesia. According to the DGLS, in 2007, there were a total of 517 dairy farms in Indonesia. The majority of the farms are small-holder dairy farms which are mainly located on Java, mainly in the cooler highland areas more than 700 meters above sea level, where the environment is better suited to dairy farming.

The Table below shows the dairy cattle population from 2005 to 2009.

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<b>Dairy Cattle Population by Province (Head)</b>					
<b>Province</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009*</b>
<b>Java:</b>					
• Jatim	134,043	136,497	139,277	212,322	221,944
• Jateng	114,116	115,158	116,260	118,424	134,821
• Jabar	92,770	97,367	103,489	111,250	114,588
• DI Yogyakarta	8,212	7,231	5,811	5,652	5,709
• DKI Jakarta	3,347	3,343	3,685	3,355	3,422
<b>Other areas:</b>					
• Sumut	6,521	6,526	2,093	2,290	2,505
• Others	2,342	2,886	3,452	4,284	4,005
<b>Total</b>	<b>361,351</b>	<b>369,008</b>	<b>374,067</b>	<b>457,577</b>	<b>486,994</b>
Note: * Preliminary figures					
Source: Directorate General of Livestock Services					

The dairy cattle population has been growing at about 7% per annum over the past five years to 2009. The fastest growth was seen in East Java (Jatim) with an annual growth of 13%, followed by West Java (Jabar) with 5% annual growth and Central Java (Jateng) with 4% annual growth.

The Table below shows the quantity of fresh milk produced by the major provinces from 2005 to 2009.



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<b>Fresh Milk Production by Province (Tonnes)</b>					
<b>Province</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009*</b>
<b>Java:</b>					
• Jatim	239,908	244,300	249,275	312,270	327,884
• Jateng	70,693	130,896	70,419	89,748	94,236
• Jabar	201,885	211,889	225,212	225,212	236,473
• DI Yogyakarta	8,812	11,063	6,994	7,083	7,291
• DKI Jakarta	5,061	6,365	7,016	6,388	6,515
<b>Other areas:</b>					
• Sumut	4,695	8,783	1,507	1,324	1,390
• Others	4,908	3,253	7,260	5,018	5,542
•					
<b>Total</b>	<b>535,962</b>	<b>616,549</b>	<b>567,683</b>	<b>646,953</b>	<b>679,331</b>
Note: * Preliminary figures Source: Directorate General of Livestock Services					

Indonesia produced almost 680,000 tonnes of fresh milk in 2009, up from around 535,000 tonnes in 2005. This shows an average annual growth rate of 5% over the five years to 2009.

The provinces with the fastest production growth rate were East Java (Jatim) and Central Java (Jateng) with a 7% annual growth rate. West Java (Jabar) achieved a slower production growth rate of 3% in the same period. These three provinces together produced almost 97% of the nation's raw milk in 2009.

Indonesia consumes around 2.2 million tonnes of milk annually. According to GDLS, per capita annual milk consumption in 2009 was 9.53 kg.

Trade sources indicated that the domestic raw milk production is about 1.3 million litres to 1.4 million litres per day. Around 90% of the domestic production is supplied to the milk processing industry (IPS).

The IPS are made up of the major milk processors in Indonesia, including Nestle, Indomilk, Friesche

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Vlag, Ultra Jaya and Sri Husada. These companies are also the main importers of milk powder and other dairy ingredients.

Domestic supply has never been able to fully meet the nation's demand for milk. Indonesia was only able to supply around 26% of the nation's demand for milk in 2009. The remainder of 74% of the demand in 2009 was met by imports, mainly from Australia and New Zealand.

Indonesia's dairy farms, particularly the commercial farms, usually have around 60% productive females, of the Friesian Holstein breed, with around 40% in lactation. Some key points to note are as follows:

- artificial insemination (AI) is actively practiced by these dairy farms to improve the genetic stock of the dairy herd;
- generally, AI involves Friesian Holstein crossbreed females and semen from superior bulls;
- bovine semen is produced by the Singosari AI Centre, East Java and the Lembang AI Centre, West Java; and
- trade sources comment that the locally cross-bred dairy cattle have higher performance due to better climatic adaptation compared to imported ones.

The majority of dairy farms are members of the Association of Indonesian Dairy Cooperatives (Gabungan Koperasi Susu Indonesia, usually referred to as GKSI). Most farmers work in collectives, combining their three or four cows into larger herds that are then milked at milking stations.

GKSI controls virtually all organised raw milk production in the country and operates collection centres and milk processing plants. GKSI also provides veterinary services to its members. The cooperative collects fresh milk from farmers and brokers before delivering the raw milk to the IPS.

Farm gate milk prices are periodically negotiated between the IPS and GKSI, which stood at an average of 3,000 rupiahs/litre in 2009. The IPS effectively control the farm gate price due to their purchasing power.

Indonesian dairy farmers face difficulties in increasing the quantity and quality of their milk. Trade sources comment that several fundamental problems restrict further improvements in Indonesia's dairy cattle productivity, including:

- small farm size;
- scarcity of land with suitable elevation for dairy cattle farming;

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- limited farmer education with poor farm management practices;
- scarcity of forage and the high price of dairy cattle feed;
- limited access to bank loans; and
- limited access to high-quality genetics;

Trade sources also provided the following information about the weaknesses of small-holder dairy farms:

- most cows achieve low milk productivity, producing on average between 9 litres to 11 litres per head per day;
- sub clinical mastitis causes milk production to decrease in quality and quantity; and
- the reproductive cycle is also long, with calving interval longer than 14 months. Reproductive disorders occur, such as Brucellosis, IBR and BVD, leading to low calving rate. As a result, the national dairy herd replacement rate is too low to keep up with demand.

All these factors contribute to the insufficient level of raw milk being produced by the dairy farming sector today.

### 2.3 Goat farming

Indonesia had close to 15.7 million head of goats in 2009, up from 13.2 million in 2005. Around 90% of goat farmers are small-holders, each owning between three to six goats.

Goat farming is a secondary but important source of income for most small-holders and are kept as an asset that can be readily turned into cash in times of need.

A small number of commercial goat farms with over 100 head of goats exist today, mainly located in Java. These farms target the local Java market, particularly the Jakarta market.

Goats are preferred to sheep by local farmers because goats are better suited to the climatic conditions and natural environment of Indonesia. Goats are widespread in Indonesia, although they are mainly concentrated on Java.

The Table below shows the goat population from 2005 to 2009.

## The Indonesian Cattle and Goat Sectors

Goat Population by Province (Head)					
Province	2005	2006	2007	2008	2009*
Java:					
• Jateng	3,224,067	3,165,040	3,126,250	3,356,801	3,491,073
• Jatim	2,384,973	2,414,350	2,444,794	2,739,727	2,780,822
• Jabar	1,138,695	1,148,547	1,294,453	1,431,012	1,488,152
Other areas:					
• Lampung	927,736	798,816	955,901	1,012,605	1,012,705
• Banten	572,761	681,253	729,713	821,588	854,522
• NAD	565,776	787,708	740,298	697,426	703,594
• Sumut	640,500	643,860	749,420	618,394	619,940
• NTT	479,883	496,766	511,695	532,458	547,234
• NTB	338,354	376,130	388,693	495,028	528,811
• Others	3,136,532	3,277,484	3,528,997	3,442,393	3,628,887
<b>Total</b>	<b>13,409,277</b>	<b>13,789,954</b>	<b>14,470,214</b>	<b>15,147,432</b>	<b>15,655,740</b>
Note: * Preliminary figures Source: Directorate General of Livestock Services					

Indonesia's goat population has been growing at about 3% per annum over the five years to 2009. The provinces of East Java (Jatim), West Java (Jabar), Banten (next to West Java) and Central Java (Jateng) together had close to 55% of the nation's goat population in 2009. The other sizable goat farming province is in Lampung, located in the south of Sumatra.

The two most important breeds in Indonesia are:

- Kacang; and

- Peranakan Etawah (Etawah).

Kacang is a local breed which is commonly found all over Indonesia. These goats are relatively small

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in size with a compact body frame and are well adapted to small-holder farming management systems and feeding regimes.

Etawah goats descend from crosses between the Kacang and Jamnapari goats that were imported from India by the Dutch during the colonial era. Some key points to note about the Etawah breed are as follows:

- these goats are distinctly different from the Kacang goats as they have a larger body frame, long hanging ears, a convex face and larger horns and wither height of around 72 cm to 90 cm;
- the level of goat meat produced from Etawah goats is higher when compared with the Kacang breed;
- the Etawah goat's body weight for adult males is between 65 kg to 90 kg and females between 45 kg to 70 kg; and
- milk produced by the Etawah goat could reach between 1 to 3 liters per day.

Both the Kacang and Peranakan Etawah goats are capable of breeding all the year round with no distinct breeding season. Average kidding intervals is between 9 months to 12 months with each doe producing about 3 kids per annum.

Goat farming requires low initial capita investment and is thus an attractive undertaking for small-holders. Goats, being hardy animals, require low maintenance and breed more rapidly than cattle, making goat farming more attractive to small-holder farmers.

Similar to large ruminant production in most small-holder farms, goat production systems are mainly extensive and low-input in nature, based largely on forage (grass and leaves). Additional feed is also provided, particularly to expectant females and females with kids, composed of coconut oil cake, soy oil cake, bran, fish meal plus minerals and vitamins.

Traditionally, goat farmers acquired their goat farming knowledge from older family members and from hands-on farm experience gained when helping the elders. Only a small number of farmers have participated in the various training and extension programs provided by the government.

Goats are primarily raised for meat on small farms in Indonesia. Some key points to note on demand:

- their contribution to the meat market is important, particularly for Qurban (sacrificial animals) when the meat from the sacrificed animals is distributed freely to family members, friends, neighbours, the poor and needy, once a year during the Islamic celebration of Idul Adha or Lebaran Hajj (the Festival of Sacrifice). Demand for goats peak throughout Indonesia during this period;

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- in addition, Aqiqah is performed to celebrate the birth of a child, when one goat is slaughtered for the birth of a daughter and two goats are slaughtered for the birth of a son;
- overall, goat meat is not consumed on a regular basis in Indonesia;
- per capita annual consumption of goat meat is relatively low. In 2009, it was only 0.15kg per head, according to DGLS; and
- the contribution of goat meat to the total meat supply of Indonesia is also small, at only 2%. More than 3.1 million goats were slaughtered in 2009, according to the DGLS.

The Table below shows the quantity of goat meat produced by the major provinces from 2005 to 2009.

<b>Goat Meat Production by Province (Tonnes)</b>					
<b>Province</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009*</b>
Java:					
• Jateng	8,917	13,511	8,292	9,655	9,944
• Jatim	14,397	14,577	15,308	15,540	16,161
• Jabar	4,067	7,013	6,041	7,393	8,504
Other areas:					
• Lampung	2,004	2,802	2,589	5,456	5,557
• Banten	2,318	1,318	3,012	3,771	3,921
• NAD	1,550	1,736	5,268	1,382	1,578
• Sumut	2,787	2,337	4,680	3,320	2,220
• NTT	1,719	2,661	2,462	2,936	3,018
• Others	12,844	19,059	15,963	16,574	17,890
<b>Total</b>	<b>50,603</b>	<b>65,014</b>	<b>63,615</b>	<b>66,027</b>	<b>68,793</b>
Note: * Preliminary figures. Source: Directorate General of Livestock Services					

Indonesia produced almost 69,000 tonnes of goat meat in 2009, up from around 51,000 tonnes in 2005. This shows an average annual growth rate of 7% over the five years to 2009. The major goat farming provinces of East Java (Jatim), West Java (Jabar), Banten (next to West Java), Central Java (Jateng) and Lampung together produced close to 65% of the nation's goat meat in 2009.

Trade sources comment that:

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- goats are usually sold to the local traders rather than directly sold at the village markets. Local traders usually visit small-holder farms to purchase goats and prices are agreed on the spot between farmers and traders. Most farmers prefer this convenient mode of trade;
- the largest market base for goat meat is in Jakarta, where meat is consumed on a regular basis by the middle to high income households throughout the year;
- goats are rarely milked because goat milk is rarely consumed by Indonesians. This is the case even though farmers are generally aware that Etawah goats could produce milk for human consumption; and
- in practice, only a small proportion of them milk their goats regularly. Most farmers are reluctant to extract milk from the goats in case it would adversely affect the growth rate of the kids.

The bulk of goat meat consumed is produced from the national goat herd. Only a small proportion is from imported goats.

Australia was the only supplier of live goats to Indonesia. Imported live goats from Australia were usually destined for slaughter and were usually imported to meet demands from high end restaurants and hotels in Jakarta. For this reason, import levels were erratic. In 2008, goats were not imported into Indonesia following the global financial crisis.

<b>Import of Live Goats (Head)</b>					
<b>Origin</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
Australia	16,139	186,219	8,451	375,319	0
<b>Total Units</b>	<b>16,139</b>	<b>186,219</b>	<b>8,451</b>	<b>375,319</b>	<b>0</b>
<b>FOB value (US\$)</b>	<b>40,720</b>	<b>569,087</b>	<b>21,324</b>	<b>1,057,463</b>	<b>0</b>

Note: Trade statistics for 2009 were not available at the time of writing this report.  
Source: Government Trade Statistics

Malaysia is currently the only export market for Indonesian goats. Trade sources indicated that most of these are exported by commercial farms, which purchase goats from local farmers for fattening in time for the Idul Ada religious celebration.

The commercial fattening farms enter into supply contracts with several farmers ahead of the Idul Ada religious celebration each year. The more established commercial farms enter into forward contracts

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with the small-holder farmers to tie them into a fixed market price to avoid any potential market price fluctuation during the Idul Ada period.

The Table below shows the quantity of goats exported to Malaysia from 2004 to 2008.

<b>Export of Live Goats (Head)</b>					
	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
Malaysia	413	3,731	21,873	29,089	24,628
<b>Total Units</b>	<b>413</b>	<b>3,731</b>	<b>21,873</b>	<b>29,089</b>	<b>24,628</b>
<b>FOB value (US\$)</b>	<b>61,320</b>	<b>302,977</b>	<b>1,660,488</b>	<b>2,639,075</b>	<b>2,201,760</b>
Note: Trade statistics for 2009 were not available at the time of writing this report. Source: Government Trade Statistics					

Live Etawah goats are exported into Malaysia to meet demands for the Qurban (sacrificial animals) during the Idul Ada religious celebration. Trade sources comment that each goat can fetch between Rp 2 million to Rp 6 million for the Malaysian market compared to Rp 500,000 to Rp 1 million each for the local market during the religious celebration. Trade sources added that goats sold in Indonesia at other times can be sold at prices as low as Rp 200,000 to Rp 300,000 per head.

Although the Middle East market was perceived to be a large target market for goats by the local businesses involved in the goat trade, it has not proved to be a viable market because the local mature goat size is too small and cannot fulfil the minimum standard required to penetrate the Middle East market. Consequently, Malaysia continues to be the only export market for Indonesian live goats today.

Goat farming forms part of the overall strategy of the government to develop the rural economy through small-holder farms in order to improve the livelihood of the rural households. Several government projects have been implemented over the years to improve production and hence increase farmers' income.

According to trade sources, most of these projects failed to improve production systems as the farmers often return to their traditional farming practices once the programs were terminated. It is now evident that:

- the government has recognised that it is a challenge to increase the size of farms into larger scale operations because of the farmers' lack of financial capital required to pay for feed and



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concentrates, farm labour, veterinary services and animal healthcare and the necessary infrastructure in order to expand their farming activities;

- many goat farms also have limited land space to expand the size of the farm; and
- most farmers lack the technical knowledge and training to improve their livestock's productivity. As a result, the business community is not interested in commercially developing the goat meat market.

Today, Indonesian goat farmers continue to remain small players in the agricultural sector. Trade sources comment that several fundamental factors restrict Indonesia's goat farming productivity, including:

- unavailability of suitable breeding goats;
- lack of suitable land and feed resources;
- inadequacy of knowledge of goat husbandry among farmers; and
- lack of a good production practices program for farmers.

For these reasons, goat farms have remained largely small scale today.

### **3. Government policies affecting the cattle (beef and dairy) and goat livestock sub-sectors**

#### **3.1 The broad policy objectives**

The policy objectives of the Indonesian agricultural sector include improving the economy of the rural poor, improving food security and enhancing the export capacity of some agricultural commodities. Within the context of improving food security, achieving self-sufficiency in rice and other basic commodities such as meat and milk is essentially a measure to control inflation and foreign exchange.

#### **3.2 The Directorate General of Livestock Services and its role**

The Directorate General of Livestock Services (DGLS) is the central government authority responsible on behalf of the Ministry of Agriculture (MoA) for the planning, implementation and monitoring of national livestock production. This includes the formulation of policy, planning and implementation of national livestock development programs, provision of technical support services, regulatory oversight

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and livestock quarantine, including responsibilities for livestock product testing and quality control, quarantine and food safety.

In respect of the ruminant livestock sector, DGLS' mission is to:

- increase the population and productivity of ruminant livestock;
- optimise resource utilisation potential of local livestock and feed;
- encourage development of appropriate technology and machinery;
- improve the quality of administrative services and technical ruminant livestock farming; and
- improve coordination and integrate development of the ruminant sector with the business sector.

The long term objectives of DGLS include:

- increasing the national availability of meat and milk;
- increasing farmer income and welfare;
- reducing dependency on import of meat and ruminant livestock; and
- increasing the efficiency and effectiveness of ruminant livestock farming.

The overall programs to be implemented to achieve the above objectives include:

- increasing population and livestock productivity through artificial insemination, natural mating and the stringent prevention of slaughtering of productive female cattle;
- increasing the production of meat through the cattle business development, development of dual-purpose cattle, crossing, improved farming systems and institutional development of farmers;
- increasing milk production through replacement parent, dual-purpose livestock development, improved farming systems and institutional development of farmers;
- development of feed through the development of appropriate technology, utilization of agricultural wastes and agro-industries, development of green fodder location-specific advantage;
- development of appropriate tools and machinery for ruminant livestock farming, livestock feed processing and farm waste treatment;

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- the development of ruminant livestock cultivation through the development of breeding areas, facilitation of capital and business partnership, farmer training groups and cooperatives, development of business models and site-specific farming local culture, encouraging the growth of investment in livestock; and
- empowerment of farmers through capacity building efforts, improving the function and development of institutional knowledge of field officers.

### **3.3 The policies and programs targeted at livestock breeding**

Both the central government and local governments have launched various programs over the years to increase cattle production, with some level of success. The government is already involved in research projects to improve cattle breeding. It also has in place a number of programs to improve small-holder performance. They include the provision of artificial insemination services, credit schemes and extension services to assist breeders and fatteners.

The Ministry of Agriculture's research arm, the Indonesian Agency for Agricultural Research and Development (IAARD), runs 11 research centres, one of which is the Indonesian Centre for Animal Science Research and Development (ICASRD).

ICASRD has two institutes, both located in Bogor, which focus on animal production and veterinary medicine, and two research stations located in Pasuruan (beef cattle) and Sungei Putih, North Sumatera (goats). Their research covers livestock breeding, reproduction, post-harvest handling, forage and feedstuffs, veterinary sciences, pharmacology, livestock germplasm of fodder crops and microorganism.

Apart from breed improvement programs, national artificial insemination (AI) program and the introduction of commercial cattle fattening, there has been no long-term program to stimulate more efficient large or small scale ruminant production.

### **3.4 The beef self sufficiency program**

The government has launched a beef self-sufficiency program which was targeted for achievement by 2005, but this was later revised to 2010. The aim was to reduce imports of cattle and beef to 10% of total demand by 2010. This target has clearly not been achieved and the target year for achievement of self-sufficiency in beef has been further extended to 2014.

In line with this objective, the MoA in February 2010, launched several programs to accelerate the increase in the national herd over the next 5 years, with the objective of achieving 90% self-sufficiency in beef and increase domestic milk production to 40% of total demand by 2014. The approaches to be

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taken include the following:

- development of breeder farms;
- provision of financial assistance to cattle farmers (beef and dairy) through the Cattle Breeding Business Credit Program (Kredit Usaha Pembibitan Sapi or KUPS);
- optimisation and intensification of artificial insemination and natural mating;
- provision and development of feed quality;
- prevention of reproductive disorders and improvement of animal health services;
- improvement in the quality of the domestic slaughtering services;
- prevention of the slaughtering of productive females;
- development of commercial cattle farming;
- control of cattle and meat imports; and
- control the distribution and marketing of beef.

The Cattle Breeding Business Credit Program (KUPS), which is scheduled to run from 2010 through to 2013, will allow breeders to take out subsidized bank loans to import high-quality sperm and breeding stock. The government would make up the difference between the 5% interest paid by small breeders on the loans and the market rate, which is about 14%. The credit scheme is available to entrepreneurs, cooperatives or groups of farmers who operate cattle breeding businesses.

With loan support, the government hopes that more businesses will be attracted to enter the cattle breeding sector so as to expand the cattle population. This will hopefully lead to an increase in domestic beef and milk production, thus reducing the country's reliance on imports.

Lombok and Sumbawa in Nusa Tenggara Barat (NTB) has been earmarked by the government to produce one million cows by 2014, with 80% being allocated to increase the beef cattle herd and 20% to increase the dairy herd. Currently, farmers in Lombok keep three to five cows. Some key points to note on this plan are as follows:

- local authorities there will encourage farmers to form cooperatives with 40 or 50 animals and will be supplying them with Bali, Brangus or Simmental bulls to boost herd quality;

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- artificial insemination using semen from top quality bulls will also be used; and
- in Sumbawa, where farms are generally larger than Lombok, sizable ranches will be encouraged. The objective is to develop Nusa Tenggara Barat NTB into the nation's quality cattle livestock centre, as part of the objective of achieving self-sufficiency in beef and milk.

### Beef cattle farming in NTB (West Nusa Tenggara)

The two major islands in the West Nusa Tenggara (NTB) province are Lombok and Sumbawa. A small but growing number of larger cattle farms in Sumbawa exist where farmers own individual grazing land. The extensive dry land areas, particularly in Sumbawa, provide ideal grazing land for cattle.

### Location of the Province of West Nusa Tenggara (NTB)



Lombok and Sumbawa has been earmarked by the government to produce one million cows by 2014, with 80% being allocated to increase the beef cattle herd and 20% to increase the dairy herd. The type of livestock businesses that will be developed in NTB include breeding, feedlot, mini ranch and related downstream livestock services. Those enterprises that will involve partnerships between farmers and the core company will be attracted into NTB. Cattle breeding will be encouraged in Sumbawa while cattle fattening will be encouraged in Lombok. The objective is develop NTB into the nation's quality cattle livestock centre, as part of the objective of achieving self-sufficiency in beef and milk.

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Currently, farmers in Lombok keep three to five cows. Local authorities there will encourage farmers to form cooperatives with 40 or 50 animals and will be supplying them with Bali, Brangus or Simmental bulls to boost herd quality. Artificial insemination using semen from top quality bulls will also be used. In Sumbawa where land is plentiful and farms with over 50 heads of cattle exist, mini ranches with the cattle grazing in paddocks will be encouraged by local authorities.

New high-value crops are being planned to feed the cows. To keep crops thriving through the dry months irrigation projects are being considered, tapping underground water reserves. Trade sources indicated that based on the availability of livestock fodder, NTB has the capacity to raise livestock of up to 1.7 million heads. Trade sources added the main weakness in NTB is that there are only 150 veterinarians to cover the two islands which will be inadequate for the future expansion of beef cattle farming there.

The villages in NTB have been practicing beef farming for centuries. NTB produces a surplus of around 7,800 steers per year which are usually targeted for interregional trade, according to trade sources. It should be noted that Lombok has the exclusive right to export cows to other provinces, a long established trade which had been in place since 1831.

In 2009, there were 567,219 heads of beef cattle, up from 451,165 heads in 2005. The breed predominant found in NTB is the Bali cattle. Beef meat produced grew from 5,460 tonnes in 2005 to 7,277 tonnes in 2009. Trade sources commented that the best quality of cattle is produced in NTB where beef cattle aged three years can achieve on average 300 kg to 450 kg in weight while breeding cattle achieve an average weight of 250 kg to 275 kg at two and a half years. Daily average weight gain is around 0.5 kg to 0.8 kg.

Following the government's announcement to develop NTB into the nation's quality cattle livestock centre, 6 Australian companies, in late March 2010, have signed a Memorandum of Understanding to enter into business ventures with Indonesian companies to invest in cattle breeding businesses in Indonesia.

The breeding farms will likely be located in three provinces, namely West Papua, East Nusa Tenggara (NTT) and West Nusa Tenggara (NTB).

In addition, policies on future feeder cattle import will be modified by the government to support the beef self-sufficiency program and protect the local suppliers. This will likely result in the reduction of live cattle imports in the future.

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DGLS officials stated that in practice, the actual quantities of feeder cattle imported are usually lower than the import quantities requested and issued to importers. In addition, not all feeder cattle imported can be immediately slaughtered; some have to be fattened for the market while productive cows imported are separated for breeding purposes.

According to the Director of Ruminant Livestock Breeding, the recommendation for feeder cattle import for 2009 was around 1.1 million head, but the realisation was only 700,000 head, of which more than 200,000 head of the cattle needed fattening. In effect, less than 500,000 head of imported cattle were delivered for immediate slaughtering in 2009.

These policy announcements have created major concerns for the Australian cattle exporters because of the “*highly likely possibility*” of reduced demand for cattle from Indonesia.

### 3.5 The new policy framework for dairy farming development

In 2009, President Susilo Bambang Yudhoyono instructed the Ministry of Agriculture to develop an alternative market network for the raw milk produced by the dairy farmers. This is to relieve the farming sector’s dependency on the IPS. The dairy farmers are highly dependent on the IPS’ business, leaving them with a very weak bargaining power.

The Ministry has been instructed to develop strategies to create milk supplement programs for school children using locally produced fresh milk.

The liquid milk for these programs could be processed utilising three milk processing factories owned by GKSI. It was suggested that these factories could be used to produce ultra high temperature (UHT) milk, sweet condensed milk, and pasteurized milk. At the time of writing this report, this program has not yet been activated.

### 3.6 The policies towards the development of goat farming

Goat farming falls under the overall policy of improving rural livelihood through the development of small-holder farms in rural areas. However, it is not accorded the same emphasis for further development by the Ministry of Agriculture as for cattle (beef and dairy).

Various research projects have been conducted or are on-going into developing more productive breeds for the Indonesian environment. These include cross-breeding local goats with Boer goats to improve production of meat, research into goat milk production and alternative forage for goats utilising various local agricultural waste.

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New cross-breeds or new farming techniques are usually introduced for adoption by local farmers through village demonstrations. Small-holder farmers are provided with the new cross-breeds together with appropriate training and advice from the ICASRD research stations.

It should be noted that local farmers have more readily adapted to goat farming compared to cattle farming, largely due to the relatively lower cost of entry and the simpler management of goat farms. Most of the goat farmers have learned the trade from their family members, making it relatively easier to achieve natural growth in this livestock farming sector without too much direct assistance from the government.

### 4. The market tomorrow

Indonesia's economy has been growing at around 4.5% per annum over the past five years and economic commentators forecast future growth at similar rates over the next few years to 2014, barring any unforeseen circumstance which may negatively impact on Indonesia's economy in the future. The population is forecast to grow to 245 million by 2014, increasing the pool of future consumers for milk, beef and goat meat.

Trade sources comment that Indonesia's beef, cow's milk and goat meat markets have been growing at between 7% and 10% over the past five years. It should be noted that much of this growth has been driven by the Jakarta (capital city) market, where affluent consumers consume these products regularly throughout the year.

Optimistic forecasts for growth in beef, cow's milk and goat meat consumption suggest that growth will continue at around 10% per annum over the next five years. Based on this scenario, by the year 2014, annual consumption may increase to about 410,000 tonnes of beef, 53,000 tonnes of goat meat and 3.3 million tonnes of cow's milk, with per capita annual consumption increasing to 1.7 kg of beef, 0.2 kg of goat meat and 13.5 kg of cow's milk by 2014.

Based on this projection, by 2014, the Indonesian market will have a demand for 3.6 million head of beef cattle and 4.6 million head of goats.

Providing the government's program to increase the national beef and dairy cattle population is successfully carried out, industry sources forecast that Indonesia may be able to supply the following by 2014:

- 3.2 million head of beef cattle; and
- 1.2 million tonnes of milk.



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This means that, to meet the projected demand, around 420,000 head of feeder cattle and around 2 million tonnes of milk products may still have to be imported in 2014.

In addition, industry sources forecast that, based on current growth rates, by 2014, Indonesia may be able to supply 3.4 million head of goat for slaughter, indicating that a shortfall of 1.2 million head may have to be imported to meet market demands in 2014.

Canadian exporters and relevant Canadian industry associations that wish to follow up on the opportunities highlighted in this report and need more details on trade contacts in Indonesia should contact the Agri-Food Trade Commissioner at the Canadian Embassy in Jakarta. The contact email address is: [jkarta-td@international.gc.ca](mailto:jkarta-td@international.gc.ca)