



**HELLENIC ZAMBIAN**  
BUSINESS AND DEVELOPMENT  
COUNCIL

## Milk production in Key Traditional Cattle Keeping Areas of Zambia



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## Introduction

Zambia, a landlocked country in south-central Africa, is about one-tenth larger than Texas. It is surrounded by Angola, Zaire, Tanzania, Malawi, Mozambique, Zimbabwe, Botswana, and Namibia. The country is mostly a plateau that rises to 8,000 ft (2,434 m) in the east.

### Basic Geography Stats of Zambia

| STAT                                  | AMOUNT                                                                                                                                                              | DATE | RANK             |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------------|
| Area (total)                          | 752.618 sq. km.                                                                                                                                                     | 2013 | 40th out of 251  |
| Area (Land)                           | 740,724 sq. km.                                                                                                                                                     | 2008 | 39th out of 235  |
| Area (Water)                          | 9.220 sq. km.                                                                                                                                                       | 2013 | 51st out of 246  |
| Agricultural land<br>(% of land area) | 34.42%                                                                                                                                                              | 2007 | 113th out of 197 |
| Arable land<br>(% of land area)       | 4.57%                                                                                                                                                               | 2011 | 149th out of 204 |
| Forrest area (sq. km.)                | 415.624 sq. km.                                                                                                                                                     | 2007 | 18th out of 195  |
| Irrigated land                        | 1.560 sq. km.                                                                                                                                                       | 2008 | 80th out of 174  |
| Land boundaries (total)               | 5.664 km.                                                                                                                                                           | 2013 | 23th out of 166  |
| Land boundaries                       | Angola 1,110 km,<br>Democratic Republic of the<br>Congo 1,930 km,<br>Malawi 837 km,<br>Mozambique 419 km,<br>Namibia 233 km,<br>Tanzania 338 km,<br>Zimbabwe 797 km | 2013 |                  |

## Basic Agriculture Stats of Zambia

| STAT                                                                 | AMOUNT        | DATE | RANK            |
|----------------------------------------------------------------------|---------------|------|-----------------|
| Agricultural growth                                                  | 117           | 2007 | 67th out of 204 |
| Agricultural land (sq.km)                                            | 234.350 sq.km | 2011 | 76th out of 204 |
| Cultivable land (hectares)                                           | 5.26 million  | 2007 | 39th out of 194 |
| Cereal yield (Kg per hectare)                                        | 2.693,03      | 2012 | 94th out of 178 |
| Cereal production (metric tons)                                      | 226.82        | 2012 | 71st out of 180 |
| Farm machinery- tractors                                             | 6.000         | 2007 | 92nd out of 186 |
| Farm workers                                                         | 3.12 million  | 2008 | 40th out of 194 |
| Livestock- Annual freshwater<br>Withdrawals, total (cubic<br>meters) | 1.74 billion  | 2011 | 96th out of 179 |
| Renewable internal freshwater<br>resources, total (cubic meters)     | 80.2          | 2011 | 63th out of 176 |

## Map of Zambia



## Background

The cattle industry is by far the most important component of the Zambian livestock sector, from an economic and cultural perspective.

In Zambia, there are approximately 3,000-4,000 dedicated smallholder and commercial dairy farmers who produce milk for the formal market, using pure and cross breed dairy cattle. However, there are about 300,000 traditional cattle-owning households whose cattle also produce milk. The behavior of traditional cattle farmers differs significantly from those of commercial farmers and is influenced by social and cultural factors. For example, there is a tendency to view cattle as a store of wealth and a means of subsistence and draught power, rather than as a commercial business opportunity (investing in production and productivity improvements to maximize income).

Approximately 80% of the national cattle herd estimated to be over 3 million cattle is in the hands of traditional farmers who are much less productive with calving rate 50%, calf mortality 20-30%, adult mortality 5%, off-take rate 8-9%, live weight 200-250 kg and growth 2% than commercial farmers. A large portion of the milk produced by these farmers does not enter formal markets.

Table 1: Comparing traditional, emergent and commercial farmers

|                      | Traditional/<br>small-scale farmers | Emergent<br>commercial farmers | Medium and large-scale<br>commercial farmers |
|----------------------|-------------------------------------|--------------------------------|----------------------------------------------|
| Calving rate         | 50%                                 | 60%                            | 70-80%                                       |
| Calf mortality rate  | 20-30%                              | 15%                            | 1-2%                                         |
| Adult mortality rate | 5%                                  | 3%                             | 1%                                           |
| Off-take             | 8-9%                                | 12%                            | 17-18%                                       |
| Live weight          | 200-250 kg                          | 250 kg                         | 300 kg                                       |
| Herd growth rate     | 2%                                  | 6%                             | 7%                                           |
| Milk yield           | 1-2 L/cow/day                       | 10-15 L/cow/day                | 15-25 L/cow/day                              |

## **The dairy sub sector**

It is estimated that out of a total national production of 253 million litres of milk, only 44 million litres passes through formal market channels. A substantial portion of raw milk, mostly produced by the traditional cattle keepers, does not reach the formal market. This milk, sometimes referred to as 'lost milk', is either consumed or sold locally in unprocessed or fermented form, or wasted.

Many traditional cattle owning households fall outside the catchment area of the existing network of milk collection centres and processing plants which are mainly along the line of rail.

Dairy processors in Zambia are facing a shortfall in the supply of raw milk due to a growing domestic demand for dairy products. They are not utilizing their current processing capacity to its full potential. Most processors are below 59% capacity utilization. Processors' demand for raw milk has increased in recent times and has resulted in a dependence on milk powder imports to compensate for the deficit. This also puts pressure on Zambia to allow imports of cheaper and poor quality fresh milk from other countries.

## **Cattle keeping areas of Zambia**

Between early November and mid-December 2012, SNV Netherlands Development Organization commissioned a study of key traditional cattle keeping areas of Zambia to assess the existing and potential volumes of milk that originate from the traditional cattle sector in 15 selected districts.

The 15 selected districts have a total population of 1,162,645 cattle, which is approximately 39% of the total national herd. In these districts, about 116,267 households own cattle at an average of 10 animals (5 cows) per household. Total milk production from the 15 districts is estimated to be 57.5 million litres per annum, of which 3.6 million litres (6%) reach the formal sector through established Milk Collection Centres (MCCs). It is estimated that 37.5% is sold informally, 28.1% is used domestically (home consumption and gifts), and 28.1% is wasted.

### Milk Collection Centres (MCCs)

MCCs have facilities to receive, test, store and dispatch farmers' milk to dairy processors, and in some cases, even do basic value addition (e.g. yoghurt and sour milk). In Zambia, all MCCs are run by registered smallholder dairy cooperatives. The cooperative buys the milk from farmers, stores and markets it, and pays the farmers their entitlement at the end of each month. A small amount of commission is kept by the cooperative to cover operational costs. In order for a MCC to be viable and sustainable, a minimum supply of 500 litres of milk will be needed from farmers every day during the initial stages of establishment. A margin of 20-25% is normally retained by the cooperative to cover its operational costs in the initial stages of development. When milk volumes and membership increase, this margin can decrease to 15-18% in order to encourage dairy development and to provide more income to the farmers. Initially, the cooperative will be able to earn about US\$ 1,500 per month and its operation costs should not exceed US\$ 1,000 per month. In subsequent years, milk delivery normally increases by 20-25% and income by about 10-15%. The cost of establishing a standard MCC is about US\$ 116,500.

**Table 2: Cost of establishing a MCC**

| Item                                    | Quantity | Amount (US\$)  |
|-----------------------------------------|----------|----------------|
| MCC building and other amenities        | 1        | 45.000         |
| Milk cooler tank (2000L)                | 1        | 26.000         |
| Generator                               | 1        | 12.000         |
| ZESCO electricity connection            | -        | 4.000          |
| Borehole + tank                         | -        | 7.000          |
| Milk cans/ buckets/filters/ alcohol gun | -        | 4.000          |
| Lacto scan                              | 1        | 2.500          |
| Office furniture                        | -        | 1.000          |
| Airfreight/ VAT/Tax/ Insurance          | -        | 15.000         |
| <b>Total</b>                            |          | <b>116.500</b> |

In order for a MCC to be viable, a minimum population of 600-1000 cows (local and dairy crosses) will be required within a radius of 15-20 km of the MCC, with each having good breeding, feeding, water and animal health facilities/ services. The MCCs should be linked to a milk processor or have their own milk processing and packaging facilities.

There are currently forty-four (44) MCCs in the country. Most of these are linked to processors. MCCs with a daily intake of less than 500 litres per day are having problems sustaining themselves and meeting operational costs, particularly during the dry season.

**Table 3: Estimated volume of milk produced and distance from Lusaka & Ndola**

| District     | No. Cattle       | Households     | Cows/<br>Heifers | Milk/Yr (L)       | Distance from<br>Lusaka (Km) | Distance from<br>Ndola (Km) |
|--------------|------------------|----------------|------------------|-------------------|------------------------------|-----------------------------|
| Mkushi       | 9.298            | 930            | 4.454            | 434.250           | 299                          | 150                         |
| Kafue        | 32.370           | 3.237          | 15.200           | 1.482.000         | 54                           | 359                         |
| Kabwe        | 34.598           | 3.460          | 16.520           | 1.610.700         | 140                          | 174                         |
| Chibombo     | 70.000           | 7.000          | 35.000           | 3.412.500         | 97                           | 198                         |
| Mumbwa       | 103.067          | 10.307         | 51.444           | 5.015.790         | 239                          | 280                         |
| Mazabuka     | 89.482           | 8.948          | 42.000           | 4.095.000         | 133                          | 446                         |
| Monze        | 143.000          | 14.300         | 74.000           | 7.215.000         | 197                          | 403                         |
| Choma        | 141.501          | 14.150         | 73.000           | 7.117.500         | 296                          | 587                         |
| Namwala      | 123.016          | 12.302         | 68.287           | 6.657.983         | 336                          | 571                         |
| Kaoma        | 26.270           | 2.627          | 13.125           | 1.279.688         | 438                          | 596                         |
| Senanga      | 80.000           | 8.000          | 39.855           | 3.885.863         | 638                          | 676                         |
| Mongu        | 60.685           | 6.069          | 30.342           | 2.958.345         | 651                          | 487                         |
| Kalomo       | 140.925          | 14.093         | 77.227           | 7.529.633         | 354                          | 495                         |
| Itezhi Tezhi | 82.065           | 8.207          | 37.674           | 3.673.215         | 305                          | 419                         |
| Chongwe      | 26.368           | 2.637          | 11.832           | 1.153.620         | 45                           | 413                         |
| <b>TOTAL</b> | <b>1.162.645</b> | <b>116.267</b> | <b>589.960</b>   | <b>57.521.087</b> | <b>-</b>                     | <b>-</b>                    |

Note:

- The number of cows and heifers was obtained from district reports.
- 33% of the total cattle population is cows. 65% of the total cows and heifer population are cows.
- **50% of the cows are lactating, producing an average of two (2) litres per day for a period of 150 days per year.**
- The number of cattle-owning households was obtained by dividing the number of cattle by 10.