



## **Dairy**

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# **Dairy production in South Africa**

- impressions -

**Country Report 2012/1**

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## Dairy farming in a free market: Impressions from South Africa

### For the quick reader:

**2,6 billion kg of milk per year/2,300 dairy farmers/average herd size: 300 cows per farm/no farm subsidies/ most milk production in the Eastern and Western Cape/different production systems: grass based or TMR/net importer of dairy products**

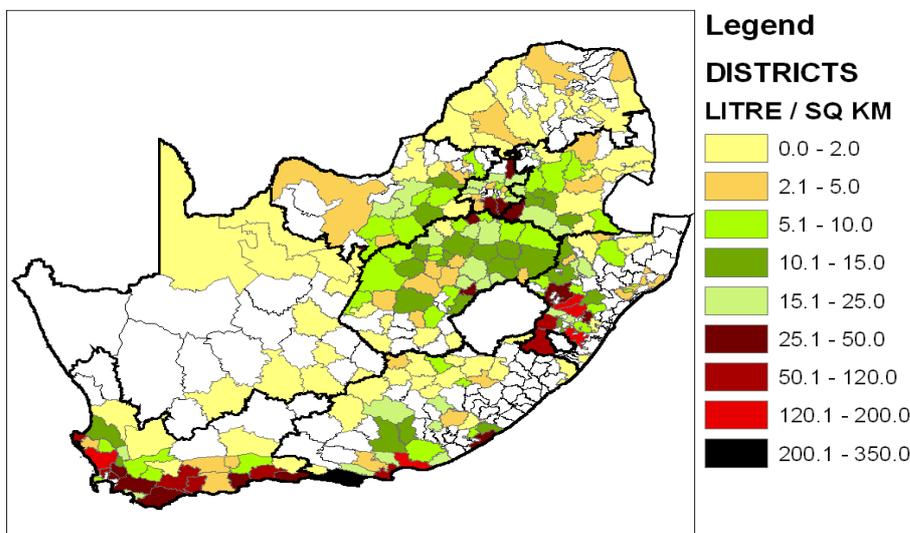
South Africa (SA) – also called “most beautiful end of the world” is the very southern point of Africa, summing up to more than one billion square kilometres. That equals three to four times the size of Germany. SA shares borders with Namibia, Botswana, Simbabwe, Mosambik, Lesotho and Swaziland. 50 billion people live there. To compare: Germany has about 82 billion inhabitants on one third of land. Because of the mixture of skin colour SA is also called “rainbow-nation”. The diverse history and the different cultures result in 11 official languages. Zulu is the most common one (24%), followed by Xhosa (18%) and Afrikaans (13%). English is the first language for less than 10% of the population. Many South Africans know more than one language, English or Afrikaans being one of them.

### Dairy production in SA: possible without subsidies

One of the major differences between dairy production in SA and Europe is the system of subsidies. There are no subsidies for dairy farmers in SA. At the same time there are only very few rules on how to treat animals or the environment.

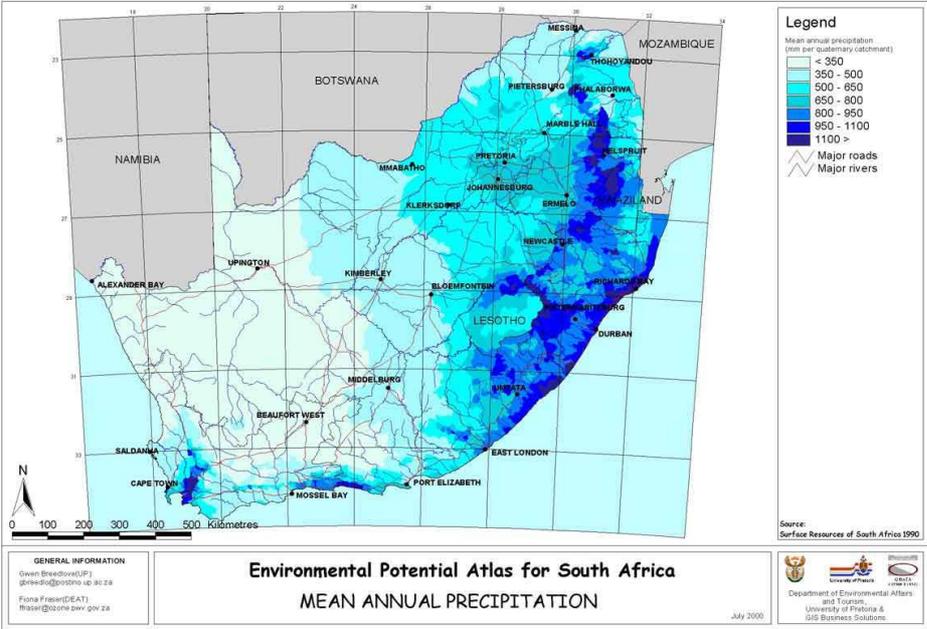
All in all SA produced 2.6 billion litres of milk in 2011. That equals an increase by 20 percent in the past seven years. Since 2011 milk production is rather stable as the milk prices did not compensate increasing fodder prices. Therefore producers did not increase milk production with the same drive as before.

*Graph 1: Distribution of milk production in SA*



About 50% of all milk is produced in the Eastern and Western Cape. Another quarter is produced in the area of KwaZulu-Natal. As water is one of the most important factors to dairy production in SA milk production is increasing at the maritime regions and further decreasing in the middle of the country.

Graph 2: Distribution of rainfall in SA (www.southafricaholiday.org.uk)



The structural change in SA continues both in terms of regional changes and in terms of herd size. In 2012 about 2,300 dairy farmers were producing about 2,6 billion litres of milk per year. Since 2007 the number of dairy

farms decreased by 40 percent. At the same time the average herd size increased. Today more than 50 percent of the milk is produced by farms delivering more than 5,000 litres per day. Average farms produce 3,700 litres per day.

**Average herd size: 300 cows per farm, growth swell: 200 cows per farm**

Largest herds are kept in the Eastern Cape. Farmers farm on average about 500 cows there. Smaller herds are kept in Kwazulu Natal (Ø 420 cows/farm) and in the Western Cape (Ø 250 cows/farm). The average herd size in SA is 300 cows per farm. On average only farms with 200 or more cows decide to grow. Smaller farms often quit the business. Already 44 percent of all farms have more than 200 cows.

**Different production systems within the country**

Production systems in SA differ from region to region. Where there is enough water (Eastern Cape) there are grass based systems similar to New Zealand or Ireland. In other regions there are TMR systems (feeding total mixed rations in the Western Cape) similar to many other regions of Europe. In the middle of the country there are also mixed systems with grazing cows which get TMR in winter. The number of mixed farms which also produce beef or wool is decreasing because they are rather small farms and dairy processors stop collecting their milk in many regions. They are too small or too far away.

Cows fed with TMR are kept in free-stall barns or feed lots. The ration consists of maize or other silage and alfalfa. Additionally 300 to 400 grams of concentrates are added per kilogram of milk. Cows then produce more than 35 litres a day. On the contrary cows kept in a grass based system as in New Zealand are kept outdoors year round. Most of the pasture is irrigated and a grass-clover-mixture is the key to success. Cows get additional concentrates only in the parlour (200 to 250 gram per kilogram milk).

### **Strong seasonality: 40 percent more milk from September to November**

Due to the large amount of farms with grazing systems and due to the differences in temperature throughout the year, dairy production is very seasonal. Lowest milk yields are reached from April to July. From September to November farmers then produce about 30 to 40 percent more milk. To reduce seasonality dairy processors encourage farmers to produce more milk between April and July by paying highest prices during these months.

Throughout the year cows are averaging for about 19 litres per day. This of course varies not only between production systems but also between the breeds. Main breeds in SA are Holstein, Jersey, Ayrshires and Guernseys. Also crossbreeds are likely to be milked – especially in grass based systems.

### **Dairy processing in SA: small structures & no contracts**

98% of the milk is sold to the formal market. This is a lot compared to other African countries where milk is mainly marketed by informal sales. Five large and 163 smaller processors buy the milk from the farmers. They process it mainly to liquid milk (UHT and pasteurised). About 40 percent is going into cheese (mainly hard cheese). "In the past there has been a strong governmental influence on the dairy industry, leading to factories at the wrong places. Adjustments to move from a controlled situation in a situation governed by market forces had been dramatic", stated Melt Loubser, Chairman of SA Milk Processors Organisation. At the end only four retailer sell about 80 percent of all milk. Milk consumption in Africa is lowest in the world: 36 kg per capita per annum (compared to 200kg per person in Europe). But from 2011 to 2012 there has been a strong increase in demand for flavoured milk and pre-packed cheese (+ 20 percent). Also the demand for fresh milk is slightly increasing.

### **Importer of dairy products despite increasing production**

As SA has a free market system without national quotas, there are also only very low import tariffs. For 15 African states there are not even import tariffs at all. Up till now SA is still a net importer of dairy products. They import concentrated milk, whey, butter, cheese and curd. On the other hand they are also strong in exporting some dairy products: yoghurt, buttermilk, milk and cream.

## **Farm Story I:**

### **Lanark Farm: 980 cows in milk: grass based/ New Zealand style**

Rob Ballantyne and his family farm 1,000 hectares of land with about 1,000 dairy cows between Port Elisabeth and Cape Town (near Knysna). Rain fall is averaging for 1,000 mm a year but has been rather unstable the past years. Only 500 mm of rain in 2008 and 2009 were followed by two years with too much rain.

### **Weather influences the number of cows**

The average number of cows is depending on the weather conditions. If there is enough food more than 1,000 cows can be fed. If forage quality of quantity is not sufficient, Rob Ballantyne has to destock his herd. The maximum number of cows kept was 1,250. Next to the cows he also keeps the female young stock at the farm. Buying heifers is very expensive. He calculates ~4,000 Rand/own heifer/year, meaning 8,000 Rand (680 €) until calving. External heifers cost about 10,000 Rand (850 €) per heifer. All cows are cross breed: Jersey x HF. 15 years ago Rob Ballantyne decided to crossbreed when he changed from a TMR system to a grass based system. "Jersey x HF-cows are more robust and can better cope with long walking distances and heat stress in summer.

### **"First come first serve"- natural selection in breeding**

Rob Ballantyne buys 800 portions of semen each year and artificially inseminates the cows. As he only needs about 230 to 250 heifers, he uses beef bulls for the other cows. The decision on which cow to put what semen is taken by the cows: "We take the first cows in heat and for the rest we use beef semen" says Rob Ballantyne. After two month a beef bull joins the herd to get the last cows pregnant. In order to have a good start the heifers are synchronised. That means that the Ballantynes inseminate 240 heifers all on one day. They do not use any technical equipment for heat detection. They only colour tails in different colours to keep an overview. High quality food and good genetics result in 3.8 lactations per cow on average. Each year he sells about 10 to 12 percent of his herd. 5-6 percent is sold because they are not fertile (checked on day 56) and another 5-6 percent each year are sold for other difficulties.

### **Walking for food**

The average walking distance for the cows is 1 to 1.5 kilometres each way. The longest way to fresh food is 2.7 kilometres from the parlour. 200 hectares of the land (20 percent) are irrigated. Most of the irrigation is used for high quality grass. Only 32 hectares are irrigated for maize. Grass is measured on a daily basis in order to make most out of the different fields. Daily changing fields are normal to Lanark's cows. As in other grass based systems Ballantynes are only milking 10.5 month a year. They do not produce any milk between May 15<sup>th</sup> and End of June. For Rob Ballantyne good grass management is the key to success "75 percent of the profit comes from the question how well you manage your

gras. The difference between profitable and not profitable farms often is only 7 days in grass management”.

### **82 cows per employee**

12 farm workers are employed at the Lanark farm. Average salary is at 2,500 Rand (210 €) per month plus 500 Rand Bonus (40 €). Additionally the workers have free housing, free milk and free water and electricity. Farm workers care about fences, insemination, health issues and milking. They work outside all day. Only the parlour has a roof. In the 60 point Swing over they milk 400 cows/hour. Usually four milker share one of the two shifts per day. At 100 days in milk cows deliver 24 litres/day with 4.6 percent fat and 3.6 percent protein.

### **Milk production = Reasonably profitable**

The Lanark farm delivers their milk to Clover. Clover is the largest dairy processor in SA and implemented an A-B-C quota system. In November 2012 dairy production was “reasonable profitable” for the Ballantynes. Clover paid a milk price of about 3.5 Rand (30 ct) per kilogram. This included a bonus for higher protein and fat and for larger farms. As in most European companies farmer learn only after the delivery about the milk price for the past month.

### **Future: unpredictable**

Rob Ballantyne did not grow up at the Lanark farm. 1982 he started at this place after being moved from his old farm. “We were lucky because even though we were forced to give up our old home we were compensated for the farm so we were able to start new in this area”, he explained. His son studies business management in order to be flexible for the future. Of course he would like to take over the farm but the Ballantyne family is not sure if they still own the farm in a few years. Political decisions are unpredictable. They are not sure if they would be compensated a second time. They would like to buy more farms but decided that the political risk is too high. In order not to lose optimism they decided “we concentrate on things we can influence and we forget those things we cannot influence.”

### **Farm Story II:**

#### **Intensive dairy production near Cape Town**

850 cows milks the Blanckenberg family 50 kilometres north of Cape Town. Thanks to the TMR system and 3 times milking a day cows at Klipheuwelplaas give up to 41 litres per cow per day. At Klipheuwelplaas not only dairy cows ensure the income of the family. Also 1600 hectares of wheat are grown. Additional 400 hectares for silage, 600 hectares of medic pastures, 300 Aberdeen Angus and 800 Merino sheep are managed by the family entrepreneurs. Including the 10 hectares of Olive trees 62 people are working on the farm. In the region there is an average rainfall of 500 mm, temperature ranges from 5 to 45 degrees throughout the year.

## **High yielding Holstein cows need more care**

The Blanckenbergs milk a pure Holstein herd. Philip Blanckenberg and his two brothers just recently changed to an all year indoor system. In the past winter times (June to September) were a challenge as wet and uneven grounds stressed the cows feet. Now things changed and summer became a challenge as cows need to be cooled down. They just implemented sprinkler in the barn but are not yet satisfied with the effect. Depending on the amount of water coming from the sprinkler it might even cause more harm as a wet and warm cow is the ideal hatchery for insects. This is why they ordered fans as well to have higher air ventilation in the barn.

## **Technology for a better herd management**

In the 60-place rotary cows are milked within 3 hours and data are recorded automatically. Milk yield as well as animal recording and activity measurement are recorded for the herd management. Six to seven people milk in each shift. Up to 41 litres per cow per day with 3.6 percent fat and 3.2 percent protein are the reward in the parlour. Cell counts are rather stable at about 150,000 cells. Parmalat pays a bonus for milk deliveries with less than 250,000 cells. Farmers have to pay a penalty if cells go above 350,000 cells. This penalty can be up to 0,2 ZAR/litre (1,7 ct).

Cows on average stay 2.4 lactations at the farm. This is already more than in times with an outdoor system. Cows only stayed 2.1 lactations then. The fertility management has been outsourced to a genetic company. They come every morning to check cows in heat. They need 2.8 portions of sperma for one pregnancy. Sexed semen is not an option at the moment. Philipp Blanckenberg is does not see a "win-win" situation here: sexed semen is more expensive and the success is not as high as with normal sperma. All cows are synchronised regarding their heat but no other hormones are used. Parmalat does not allow the use of BST which is generally not forbidden in SA. Cows are dried off with 220 days or if the milk yield drops below 25 litres a day.

## **Calves kept separately as long as possible**

Female calves at Klipheuwelpass are kept single as long as possible. First 14 days they are kept in a former pig barn with air conditioning. There they do get Kolostrum two times a day. Kolostrum milk from other cows is pasteurised before feeding it to the calves. From day two on the calves are offered small calf pellets with 21 percent of protein. Afterwards they are moved to Iglus where they stay until they are too large. Philipp recognizes single housing as important driver to healthy young stock. Calf mortality is below 3 percent. All in all calves stay seven to eight weeks on milk. When they are moved to smaller groups of four to five animals other pellets are fed (16 percent protein) and roughage is added to the ration. Before moving to another farm site, they stay in groups of 20 calves. Young stock from 6 month on then is raised at another farm site. They return to the farm at 13 month or 380 kilograms.

Male calves are sold every Friday. One week old male calves have been worth 500 Rand (42 €) in November.

### **Water management = important resource**

Water management is very important to the Blanckenberg family. In the past they used a fountain but water was very salty and ferriferous. Now they use two water sources: they collect all rainfalls and additionally use river water in winter times. Fertility and the milk yields increased since then. In summer the river usually is empty. Water in South Africa belongs to the government and used to be free of charge. But since a few years farmers shall pay for the water they use. Up until now not all farms are in the system but depending on further restrictions this might be a limitation to growth for Philip Blanckenberg and his brothers.

### **Production costs at 36 ct/kg**

All in all Philip Blanckberg calculates with 3.65 Rand (31 ct) per kilogram of milk. 1 to 1.2 Rand (9 to 10 ct) of this are labour costs. His long term employees earn 4,500 Rand (380 €) per month. Beginners earn 2,500 Rand (210 €) per month. All workers can earn a bonus depending on their success. Full time employees work about 45 hours a week.