

South African producer benefits from treating every animal as an individual

Over the last decade annual milk production in South Africa has increased from 2.0 to 2.8 billion litres. This reflects a rising demand associated with a rising affluence, which in turn reflects a real increase in the African middle classes. Their preferences are not necessarily for more fresh milk but for milk based products, such as cheeses and yoghurts.

High temperatures and the lack of refrigerators in many homes means that in the liquid milk sector the demand for fresh milk is limited, but there is a good market for UHT milk.

Move to the coast

The main market is in the Johannesburg area but the demand for land for housing, high production costs and security issues has resulted in dairy farmers selling up and milk production has moved to the better suited coastal regions. In 1990 some 75% of South African milk production was in inland areas; today it is in the coastal areas of the Eastern Cape (28-29%), the Western Cape (25-26%) and Natal (22-23%).

Over the same period dairy herds have got larger and dairy farmers fewer, but there is still scope to increase production. However, this is hampered by the four major supermarkets dominating the processors (275) and dairy farmers (1,800) and then frequently going into price wars



Nigel Lok assessing some of his milking herd.

with their milk products – with the result that there is little surplus cash at farmer level for investment. Typically, the larger operations are in white ownership and most of the farms owned by African farmers have a maximum of 30 or 40 cows.

The fact that most of the liquid milk is UHT is fortunate because this means that expensive refrigerated lorries are not needed. In fact, much of the UHT milk goes up to Johannesburg as backloads on lorries that have previously brought products for export to major ports such as Durban, Port Elizabeth and East London from the industries of Gauteng and Johannesburg.

To gain an insight into milk production in

today's South Africa, International Dairy Topics recently visited Nigel Lok's dairy operation at Robhoek Farm in the Tsitsikamma region of the Eastern Cape, which is about 150km west of Port Elizabeth. Robhoek actually means Seal Point so you will not be surprised to know that the farm is on a promontory that overlooks the sea. Behind the farm is the coastal mountain range and this position results in a lot of rainfall, which is good for grass production. In fact, this area is one of the wettest in South Africa.

The history of the region is short. The original voortrekkers took a route from the
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Left, part of the milking herd and, right, a practical way to stop a rogue heifer suckling other heifers!





Tending to pasture.

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Cape to the High Veld, which was two or three mountain ranges to the north, and so this region was effectively bypassed for many years.

The first settlers came in 1905 and found a hot humid area that was disease ridden, tick infested and had poor soil. In the late 1940s the first fences were put up. Then, two events happened in the 1950s that opened the region up for livestock farming – the availability of nitrogen fertilisers and the development of chemicals to control ticks.

Nigel came to the farm in 1983 when it had a 90 cow dairy herd, 200 head of beef cattle and 2,500 sheep. The sheep went first soon to be followed by the beef cattle. Today he has 802 milking cows in a total herd of 1,603 with the objective of having a milking herd of over 900 by the end of next year.

Some 20 years ago South Africans listened to a dairy farming guru from New Zealand who advocated using cross bred dairy cows but, by the time it was realised that this was not for South Africa, it took virtually until today to switch the herd back to Holsteins. There has not been a bull on the farm for 10 years and the majority of the cows are inseminated with Cogent semen from the UK with the remainder being covered by Dutch and American semen.

When it comes to choosing the donor bulls Nigel is quite concerned that many bulls are showing negatively when it comes to teat length, which he views as an important dairy cow trait.

Calves are initially housed individually.



Calf housing – well ventilated and easy to clean.

So what does Nigel think are the cornerstones to his success?

He highlighted three things – the advent of technologies and computer programs to enable individual cow feeding, the management of the replacement heifers and his staff.

On the first of these he thinks that bigger cows should give more milk and so he operates on a basis of milk yield as a percentage of body weight and considers feed intake on a similar basis. This he can now do because of the technologies and equipment coming from the Israeli company Afimilk whom he particularly rates.

Treating cows as individuals

To support his philosophy he highlighted the interesting fact that he has never been on a farm where the weight of the smallest cow is not less than 50% of the weight of the biggest cow. Therefore, he argues, cows must be treated and fed as individuals.

His aim is to achieve 5% milk production as a percentage of body weight with 4% butterfat.

To do this necessitates the use of a number of key parameters such as milk production figures, cow weights and activity meters as well as in-line measurement of butterfat, protein, lactose and somatic cell counts for each animal as well as the appropriate software to compute the collected data. This, according to Nigel, is where Afimilk are so good. Their software

takes into account target body condition score, stage of lactation and lactation number and produces 'individual cow menus'. This system adjusts menus and/or levels of feed on a daily basis using a 10 day rolling average of key parameters, such as milk production, butterfat content and cow weight.

Cows are weighed after every milking using a walk-over scale. This Israeli system automatically feeds up any cows that have a substandard weight after calving and can identify cows which are ailing for something.

As was previously mentioned, the size of the cow is important and to this end Nigel places high importance on getting a good weight at first AI and at first calving.

Every calf is weighed at birth and receives colostrum for the first two days and is placed in an individual calf stall. These are constructed in units of four located on a pad of concrete, which can be lifted and swung backwards into a raised position to facilitate cleaning.

Initially calves are fed milk which is fortified with milk powder to increase nutrient content. Each calf is fed individually by its own bucket so it is possible to accurately determine each calf's feed intake.

At about three weeks the four calves from one unit of calf stalls become a group of four calves. Then the milk is supplemented with a maize/soya concentrate which is fortified with Alltech organic minerals. Initially the intake of this is 0.5kg per day, but when it reaches 1.0kg at three months the calves are weaned and go on to 21% protein

Young stock outdoors, with access to fibre in the background.





A great setting for replacement stock.

concentrate mix plus water. At this time body weight should be 2.5 times their birth weight.

Between three and six months they are fed an 18% concentrate mix. By 180 days calves should weigh 200kg + their birthweight – thus a calf with a birth weight of 40kg should weigh 240kg at six months. By six months they should have achieved at least 30% of their adult body weight. From weaning roughage is available to assist with rumen development, but its availability is restricted until the calves are six months old.

By the time these heifers are ready to serve (first ovulation is before 12 months), Nigel wants to have a tall, rangy animal that can carry a large rumen size, as it is this that ultimately dictates daily milk yield. If the cow can not digest all the food she needs, she will not achieve her milk yield potential. Heifers are inseminated at 56% of adult weight.

When he looks at his costs, Nigel finds that they are similar to those for traditional heifer rearing but he saves time as age at first calving has dropped from 26 to 23 months. On top of this he finds his animals are more productive in terms of fat corrected milk yield, giving on average 1,050 more litres of milk on first lactation, 1,200 on the second and even more, often over 2,000 litres, on subsequent lactations.

After calving it is best to serve the cows at 90-110 days post calving to get the best conception rate.

Milking cow nutrition is pasture based,

supplemented with maize and/or apple pulp plus concentrate. Nigel uses apple pulp because of its good value, both nutritionally and financially, and because he has a local supply of this novel ingredient in the form of an apple juice production plant. He uses some 8,000 tonnes of a 24% dry matter apple pulp per year.

The concentrates for all animals use Alltech Bioplex minerals, which include Bioplex Zn, Mn, Cu, Co, Fe and Sel-Plex. The cows are fed individually according to bodyweight and production so there is some variance of concentrate intake between animals. The premix is customised to make sure that, regardless of this, the cow gets the required amount of daily minerals.

Optimising grass intake

When it comes to pasture the aim is not to graze it right down to the soil because then a proportion of the cows will not be getting all the grass they need and be producing less milk – any possible loss in grass yield is countered by the fact that the pasture bounces back quicker and can be used sooner.

On the health front ticks are not really an issue nowadays, but the climate really favours liver fluke as winter temperatures never drop down low enough to check or control this parasite's intermediate host which thrives well for the whole year. Worms necessitate the administration of wormer pre-peak lactation.

All herds in the region have some enzootic bovine leucosis but the manifestation of this is stress influenced and so the fact that this disease is never seen clinically is put down as another benefit of treating cows as individuals.

The area is brucellosis free but as some neighbours ship heifers off farm and rear them in a brucellosis area, Nigel fears that one day someone will inadvertently bring this disease back home to the area with returning heifers. Several diseases are seen from time to time but early detection followed by quick treatment invariably effectively counters these.

In addition, every Monday is 'vet day' and the veterinarian comes and attends to all routine matters such as post-calving checks and pregnancy diagnoses.

For any operation of this size staff are a key issue. The farm runs with a workforce of 14 men and six women and a good stable workforce is retained by respecting the team and providing a good remuneration package, which includes playschool provision for their young children and allowing staff to keep their own cows.

So, what does Nigel put his success down to? It has to be treating everything as an individual, be it milking cows, dry cows, heifers, calves or staff!

You need the benefits from this when you have to cope with the challenges of the climate, an erratic market that gives no favours to farmers, and government policies which currently give very little to the larger producers. ■

Good quality staff housing pays dividends.



The main farm buildings with milking parlour (green roof).

