

Emirati dairy operation rises to the challenges of operating in the desert

Producing milk in the desert has its challenges. Recently International Dairy Topics went to the United Arab Emirates (UAE) to find out about some of these challenges first hand and to visit Al Ain Dairy – the leading vertically integrated milk producer in that country.

Al Ain Dairy was established just over 30 years ago in 1981 and operates as an SGO (semi government operation) under the directive of Sheikh Al Nahian. Some 50% of the operation is accountable to the Abu Dhabi Fund for Development, while the other half has 12,000 of the country's marginalised national Emirati families as its stakeholders.

This operation produces a range of locally produced dairy, juice and poultry products. The progressive Al Ain Dairy has technically advanced operations, which are currently being expanded to meet local and international market demand.

Product portfolio

The product portfolio includes fresh cow and camel milk, long life milks and yoghurts. Initially most of the sales were of laban for consumption by the local people of the region but, as the number of expatriate workers increased in the UAE, the proportion of sales of westernised products rose until, today, when they account for the



Contented cows.

majority of sales. The farming operation currently has 4,000 Holstein cows, which are housed in free roaming, open-sided, temperature controlled barns under the watchful eye of Pat O'Dwyer who comes from County Carlow in Ireland.

Holsteins are the preferred breed as milk volume is Al Ain Dairy's primary goal. In the early 1980s the original Holstein stock was imported from Germany and Australia and on-going genetic improvements and production of replacement heifers are

achieved through the use of imported semen from Alta Genetics, World Wide Sires and Semex.

Single sex semen has been successfully used but the management has found that this requires strict management procedures coupled to using the best AI technicians if conception rate is not to be adversely affected.

Nutrition is very important and as the geography and climate in this part of the

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Deliveries are regularly made to the farm.



Feed production and distribution is an ongoing task.





A new arrival!



In the calf house.

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world does not favour crop and grassland agriculture, much of what the herd consumes has to be imported.

Some 80% of the alfalfa consumed comes from the USA, the fescue comes from Spain and both countries supply rye grass. Distillers dried grains with solubles mainly come from the USA. Other feedstuffs include cotton seed (USA), flaked maize (Argentina), canola (local, USA and Canada) and locally produced molasses.

American links

Feeds are formulated by a Florida based nutritionist and feed samples are sent monthly to Canada for analysis. The rations for various stock categories on the farm are mixed and distributed to the stock using conventional TMR mixers.

As far as feed additives are concerned, Alltech products are to the fore. In particular, the broad spectrum mycotoxin binder MTB100/Integral, which reduces the risk of subclinical problems associated with the presence of mycotoxins in feed ingredients, and Optigen, a slow release non-protein nitrogen source, which feeds the fibre digesting microbes in the rumen for

optimum milk production. Thus, Optigen helps in the production of milk from the high quality forages supplied to the cows at Al Ain.

The water used on farm comes from the mains supply, which in turn comes from coastal desalination plants. However, due to high environmental temperatures the water arriving by a surface pipeline can be as hot as 80°C and has to be put through a cooler to reduce the water temperature down to 25°C. The water can then be used as animal drinking water or used in the misting systems of the Korral Kool fan ventilation systems that are used in the cow barns.

Pat feels that cows do not like putting their heads into 'black holes' to drink and so he will soon be tiling the existing water troughs with blue tiles as this increases water intake.

Within 30 minutes of being born the calf is removed from its mother and is given three litres of colostrum in the first hour and two more litres nine hours later. All the colostrum used is first tested on site using a colostrometer to confirm it will pass on adequate immunity to the calf.

Calves are initially penned individually and are weaned at 80kg, which is usually between 55-70 days of age.

On weaning the calves are grouped in pens of four. Four is the preferred number

because if five calves are penned together one is invariably rejected by the remainder.

Three months after weaning the young stock is moved into the cattle yards in groups. The handling and movement of calves and young stock is typically done between 5.00 and 8.00am before it gets too hot and handling could induce heat stress. If it is very hot no stock movements will occur. This rule also applies to procedures like hoof trimming.

Target weight of 380kg

The target weight for first service is 380kg and this is normally attained by 12.5-13.0 months of age. The use of sexed semen on heifers has been a great success as this gives a 95% chance of a heifer calf and, as these are about 5kg lighter than bull calves, problems at first calving are greatly reduced. With normal semen the calving ratio of bull to heifer calves is typically 55:45.

The maternity area consists of housing with evaporative coolers. With the exception of pre- and postweaning calves all the stock is held outside in desert paddocks with shade being provided as large pole barns. These have canvas side shades, which can be pulled down, and Korral Kool fans

Cow accommodation.



Misting fans are used throughout the operation.





In the parlour.



Lined up for milking.

which blow cooling humidified air onto the animals. While the outside temperatures can reach 50°C this approach keeps the cows contented at 24-26°C.

The manure is removed four times every day when the cows, which are also milked four times a day, are in the parlour. Fresh sand is spread after every cleaning and because of the open-sided nature of the buildings there are no issues with ammonia build up.

Milking takes place in a parallel system Boumatic parlour and the milk is instantly chilled before being piped to an adjacent milk processing facility. This facility takes 50% of its milk requirement from the Al Ain Dairy farm and the remainder from contracted third party milk producers. Average milk production is 34 litres per day per cow.

Self reliance to the fore

The UAE does not have the infrastructure necessary to support progressive dairy farming so self-reliance, coupled to a heavy dependency on imports, is the rule of the day. The operation has its own veterinary team that is responsible for correcting health and some productivity issues.

Teat hygiene.



Currently the vaccination programme includes vaccination for infectious bovine rhinotracheitis, bovine viral diarrhoea and bovine rotavirus for the calves. A vaccine for mastitis is currently being trialled.

The operation also has a fully equipped and staffed engineering department that is responsible for ensuring that all equipment, much of which is imported, is correctly maintained and operational at all times.

Management philosophy

Pat's management philosophy is to put people before cows and to put both of these before equipment and from what we could see on our visit this was paying dividends!

Currently, the staffing ratio is one employee per 30 cows with the majority of the workforce coming from the Philippines, Pakistan, Nepal and Sudan. The staff turnover figure is very low at about 5% so a core of expertise is easily maintained.

For an operation the size of Al Ain Dairy, standard operating procedures (SOPs) and effective training are essential.

Staff training sessions occur monthly and

recently a session on genetics run by World Wide Sires was held. The operation is also ISO 9001 and ISO 22000 accredited and HACCP compliant.

So, what about the future?



Attention to detail.

As far as the current farm is concerned, Pat will soon be investing in electronic identification tags and the associated computer programs. In addition, there are plans for a second farm that will take total cow numbers up to 10,000. ■

Milk ready for dispatch.

