

Vietnam milking project on line to be the world's largest dairy operation

The largest and most comprehensive dairy project in the world is now becoming a reality in Vietnam and International Dairy Topics recently visited Vietnam to see the project first hand.

Known as the TH Milk Project this ambitious vision aims to supply 50% of the Vietnamese milk market and be milking some 34,000 cows by 2015 and 67,000 by 2020!

The vision of the TH Milk Project is that every child in Vietnam should drink a glass of milk a day.

Vietnam has a population of 89 million people and just 110,000 cows which produce some 350,000 tons of milk at less than 3.5 tons per cow.

Increasing market

Vietnamese milk consumption is increasing by 5-7% per year and the country has a shortage of some 650,000 tons of milk a year. Currently, the project supplies some 80 tons of milk a day.

The project started in 2009 when the Vietnamese created TH Milk Partnership and signed a contract with Afimilk from Israel for a project that will ultimately cost some \$US 1.2 billion.

This was basically an engineering, procurement and construction management



Part of the first farm in Vietnam.

(EPMC) contract and involved the provision of Israeli experts on site on each dairy farm with expertise in farm and dairy management, feed production, water treatment, waste water management and provision of veterinary services, including an on-site laboratory.

The project is in three phases:

- Phase 1 (2009-12) with an end goal of 19,000 milking cows.
- Phase 2 (2012-15), 34,000 milking cows.
- Phase 3 (2015-20), 67,000 milking cows.

By the end of Phase 1 the intention is to have 12 operational dairy farms each with 2,400 milking cows and 3,600 heifers and to have imported 32,000 heifers from New Zealand or from other sources.

Each farm requires 1,000 hectares of land and should produce 20,000 tons of milk per year which will be processed as UHT milk of different flavours and packed by the most modern milk processing plant in Asia.

The farms are in clusters of three and each

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Left, the milk parlour building and, right, farm number three.





Inside the milking parlour and, right, individual cow details are easily visible for milking staff.

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cluster has a logistics centre that includes a feed centre with TMR production facility. A typical farm cluster with some 7,000 milking cows and 10,000 heifers consumes some 400 tons of TMR feed per day!

The final production will have four clusters of three farms and consume some 1,200 tons of TMR per day!

Two milking parlours with Afimilk equipment are currently operational and to date all targets have been met – 45 tons of milk per day by October 2010, 70 tons per day by July 2011 and 150 tons per day by November 2011. Each milking centre milks 2,400 cows in two 2 x 30 cow parlours.

the operation's veterinarians can be quickly identified and retained in a special 'hospital' facility close to the parlour.

As well as providing a wealth of cow information, the computerisation in the parlour also provides a plethora of data on equipment and staff efficiency, including adherence to protocols.

Milking time provides time for staff to till the bedding areas in the cow accommodation and this ensures that this material stays in good condition.

In fact the system works so well that it is possible to work wet manure into the bedding with no adverse effects. Each cow has 22m² of space including 17m² of bedding area.

Accurate monitoring

Each cow has a pedometer and its performance at milking is accurately monitored.

One interesting measurement is that of milk conductivity, which is automatically compared to the mean of the last 10 days' readings. A rise in the reading is usually the first indication of mastitis which should be confirmed by more traditional means.

Information on the time taken to complete milking and the amount of milk produced is also available for every cow, as is information on activity levels.

A depression in activity often indicates the onset of lameness or other illness.

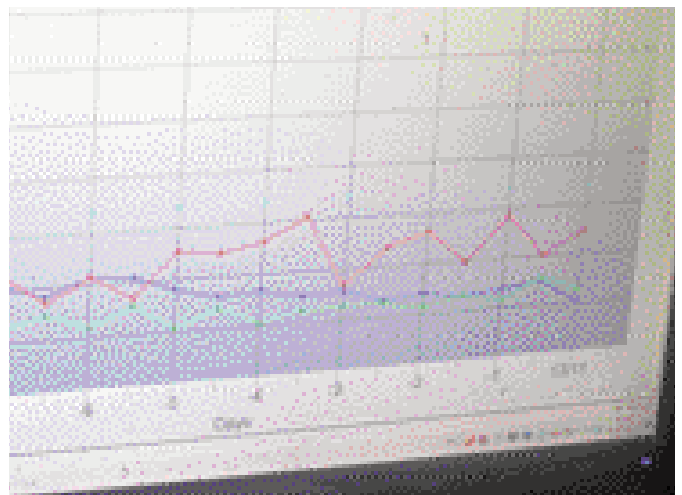
Thus, although this is a big operation animals requiring veterinary attention by one of

Own TMR mix

Feeding is 100% based on an on-farm produced TMR mix. TMR feed production is non-stop with the main production shift being from 8pm until about midday the next day so all the feed can be delivered to the farms in the cluster on day of production.



Left, first milk can be collected separately. Below left, all milking can be followed in the parlour office on the computer and, right, early detection of mastitis – note the sudden rise in the conductivity (red line).





Inside the calf rearing accommodation.

At the outset, roughage such as hay and straw were imported but now these are all sourced locally and rice straw, which is abundant in Vietnam, is being widely used.

The project also looked at local grasses and found that one, Guinea-Mombasa, makes a very good silage. Its only drawback is its low dry matter content of some 24-26%, but the project hope to increase this by cutting and then leaving the cut Mombasa to wilt in the field before silage clamping.

Local ingredients

By using these locally sourced materials and paying close attention to feed formulation TH has managed to take \$US2.0 per day off milking cow feed costs and over \$US1.0 per day off heifer feeding costs. Today, well over 90% of all feed ingredients are locally sourced.

Cows typically consume 20kg of dry matter a day and produce some 24 litres of milk from their two milkings a day. Milk consumption could be increased by 10-15% with a third milking.

At the moment, productivity figures are a

bit meaningless because of the disproportionate number of heifers in the operation, but performance figures are well ahead of any others in the region and this is primarily due to the genetics coupled to quality feeding and management.

Much of this is sold through TH's own retail outlets which are mainly located in the cities. The milk Tetra packs are only 180ml in size because much of the milk is consumed by children and, in the hot climate of Vietnam, it is best to consume the contents of a pack in one go on opening.

The TH Milk Organisation, which runs the project, is divided into various divisions, namely, farms, milking parlours, field crops, feed production, veterinary and administration. This last team covers areas such as purchasing, accounts, IT and personnel.

Afimilk's input is divided into a senior team based in Israel and project managers based in Vietnam.

The Israelis are initially responsible for managing the project during its establishment, preparing long lead items, the budget, preparing and controlling the time schedule, monthly progress reports to their Vietnamese client and the professional man-

agement of the project. Ultimately these functions will pass to the Vietnamese.

The Friesian heifers come from New Zealand where they are selected by staff from the project before being shipped by sea to Vietnam.

Integrated projects

Integrated projects include waste treatment plants, composting plants (which will recycle the manure back to the operation's field crops), water purification, green energy solutions (which in essence will power the project by solar power) and the provision of a feed milling operation.

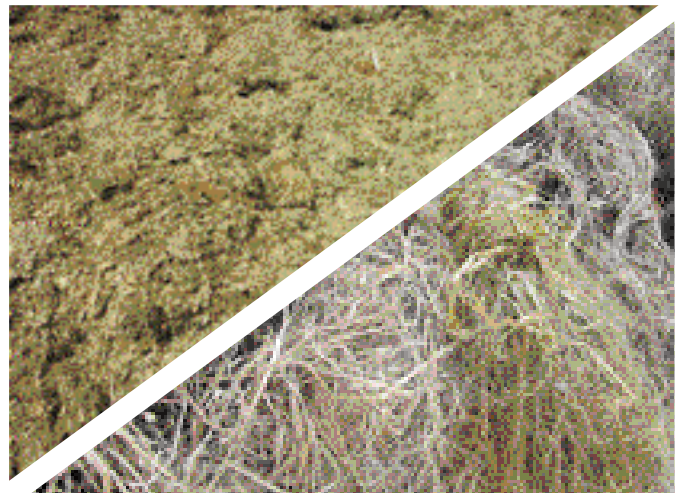
At the time of our visit some 3,000 hectares of land were under field crops and by the end of 2012 this will be some 12,000 hectares at a rate of 0.3-0.4 hectares per cow.

The main crops are maize, soy bean, Guinea-Mombasa and Mulato and at the end of 2011 yields were 25,000 tons of maize and 10,000 tons of hay.

A key function of the management of the

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The control room for preparation of TMR feed and, right, Guinea-Mombasa (top) and rice straw silages (below).





Left, a new maize crop and, right, the first shoots of the next Mombasa crop following harvest a week or so earlier.

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project is to ultimately provide the Vietnamese with the skills and management expertise so they can run it.

Thus, a heavy emphasis is placed on people and training in areas such as building and equipment maintenance, forward planning, veterinary care, insemination technique, calf management, milking, feed planning, crops planning and production and the AfiFarm system.

The whole project operates to Afimilk provided procedures and protocols which

focus on all the key aspects of the project from artificial insemination through to milking and waste management.

The timeline to date is shown in Fig. 1 below.

A very successful start

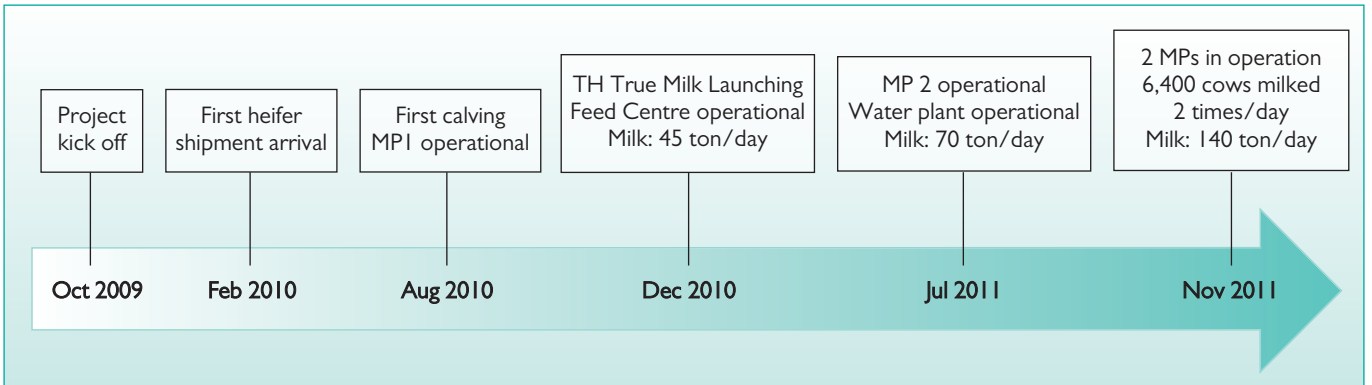
At the end of the first two years of the project a very successful start can be claimed with the following achievements:

- There are some 15,000 animals with

some 6,400 milking cows and 5,000 heifers born in Vietnam.

- Two milking centres are operational.
- The veterinary laboratory is in the process of being operational.
- The water treatment plant is operational.
- There is efficient senior management and project co-ordination in place.
- Approaching 3,000 hectares are already producing field crops.
- The feed centre is operational.
- Milk production is some 150 tons per day.

Fig. 1. Timeline of the key milestones achieved.



Silage clamps at the Feed Centre and, right, one of the outlets through which the milk is marketed.

