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Rabobank

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India: dairy giant walking barefoot

But India is a dairy giant walking barefoot. That is evident from this report on India's dairy farming and dairy industries. In this enormous country with more than one billion inhabitants, milk is produced from north to south, but primarily in the country's west. Much of the production is transported to the major population centres in the country's interior and east.

Rising production

Pankaj Karna, Corporate Finance director of Rabo India Finance, paints a picture of the Indian dairy sector in short, sharp lines. 'Production is expected to increase this dairy year to 96 billion kg. At a national level, 57% of the production consists of buffalo milk and 43% of cow's milk. Each year buffalo milk production rises by 4%

Each year some 615 billion kg milk are produced world wide, almost 15% of which is produced in India. With production running at 92 billion kg per annum, India is the world's largest milk producer.

and just cow's milk by just 1.2%. One of the reasons for this is that the Indian buffalo herd is expanding by 1.2% per annum, while the dairy cow herd is decreasing by an average of 1% per year – due in part to the droughts in 2002 and 2004. And, moreover, Indian buffaloes produce more milk than the cows.' Karna describes India's unique system of milk production and milk collection; there's nothing like it anywhere else in the world. No fewer than 70 million households are involved in the

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production of milk. These are mainly small and even marginal cattle farmers, but also labourers without land, who have at most two dairy cows or buffaloes tethered near their homes.

Of these 70 million households, 11 million can be characterised as cattle farmers. These are dairy cattle farmers with an average of two cows or buffaloes producing between 10 and 12 litres of milk per day. They are organised into no fewer than 110,000 village dairy co-operatives or Dairy Co-operative Societies (DCSS). These co-operatives, set up across India following the Anand Model (see below in this *ZuivelZicht*), collect the milk from their dairy farmers and cool it at 4-6 degrees Celsius. Some of this unpasteurised milk they sell to the village residents. The rest is collected by the travelling Milk Collectors, who take the milk to the co-operative Milk Unions for processing. This industry is organised on a state by state basis. This approach connects the predominately small dairy farmers via their co-operative system directly with the many hundreds of big cities in India. India also has various privately-owned dairy companies. They procure their milk from both milk collection centres in the villages and, in the north-west in particular, from milk traders. These traders are responsible for the quality of the milk they supply. The state of Maharashtra is a case apart because milk production there is subsidised by the government and the government is responsible for the milk collection. The state pays the dairy farmers a higher price than is paid by the state's processing industry.

65% unpasteurised

Of India's total milk production, no less than 65% is consumed unpasteurised.



Buffalo produce 57% of the milk in India, and the number of buffalo is increasing annually by 1.2%, while the number of cows is decreasing.



The two representatives of Rabo India: Pankaj Karna (left) and Hemendra Mathur (right).

Rabo, active in India for seven years

'The Rabobank has been active in India for more than seven years. The organisation employs some 100 people in the country and provides funding to the tune of about USD 850 million.' Hemendra Mathur, director of Rabo India Finance, uses these figures to describe in a nutshell the bank's development. 'But we are doing more,' tells Mathur, also strategic advisor with Food & Agribusiness at Rabo India. 'We are strong in strategic consultancy regarding cooperation in agrarian production chains. We also have a strong focus on acquisitions. With our knowledge and background, we were well situated to advise the National Dairy Development Board of India regarding the continued development of the co-operative dairy in our country.' He tells that a handful of foreign dairy companies are now active in India. For example, the New Zealand company Fonterra has a joint venture with the Indian company Britannia. And the Swiss multinational Nestlé has two factories near the capital New Delhi. Here, it is producing a series of products such as UHT milk, spreads, cheese, yoghurt and drinking yoghurt. These products are sold in India as well as exported to Pakistan and Nepal. Slowly but surely, private American dairy companies are taking over the reins in India. Of the EU countries, France is the most active. Fromageries Bel and Bongrain, which has the Debon brand, are the strongest examples of French players. 'I think that most foreign dairy companies are waiting to see how India develops,' says Mathur. 'For two reasons, firstly the lack of a cooled chain from producer to consumer and secondly the very narrow product mix. Drinking milk is actually the only product that's for sale on every street corner. Cheese consumption is really low, but rising slowly. The biggest thing is the production of cottage cheese. Sweetened condensed milk is the raw material for Indian sweets, while many Indians make their own yoghurt from milk. So, with more than one billion consumers, India has enough challenges and potential to warrant getting involved.'

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Of this percentage, 44% is consumed in the rural area in which it is produced, meeting the needs of cattle farmers and their families and sold, through the village co-operatives, to others with no cows or buffalo. The remaining 21% of the unpas-

teurised milk is sold to urban consumers. Of the 35% of the milk production that is pasteurised, 22% is processed by the unorganised dairy sector. Most of this milk is used to make sweets. This is done in 'halwai', workshops that are usually located

beside a shop. Here, sweetened condensed milk, with various additives is produced in accordance with the region's traditions, religion and flavours. In India's predominantly tropical and subtropical temperatures sweets like chocolate are highly perishable. Thanks to the rich culture of festivities, the consumption of condensed milk sweets, which are usually eaten fresh and are also perishable, has surged. This means that only 13% of the Indian milk procurement is processed in the co-operative and privately-owned dairy industry. 'The majority of this, 8% of the total milk procurement, is processed into packaged or loose pasteurised drinking milk for consumers in the major cities,' says Karna. 'The other 5% is used to make products with added value, such as milk powder, ghee, ice cream, cheese and fresh milk products.'

Consumption outstripping production

Finally, he admits that the consumption of milk and dairy products in India is outstripping domestic production. Consumer demand for dairy products like drinking milk, condensed milk, baby food, ghee, butter and ice cream, is estimated to be worth EUR 13.54 billion. This demand grew by an average of 7.6% per year between 1996 and 2002. Despite this growth, the average availability of milk per capita of the population in India is no more than 229 gram per day. And that is clearly below the world average for per capita consumption, says Pankaj Karna, which stands at 285 gram per day. Moreover, the quality of Indian milk is not particularly high. 'We can establish the content of the milk's fat and other standard constituents. But we have no infrastructure of laboratories to study any other aspects of the milk,' says Karna.

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Village co-operatives basis of Indian dairy

It is a daily ritual in this village of 5,900 inhabitants. The dairy farmers can deliver their milk between 6.00 a.m. and 8.00 a.m. and between 4.00 p.m. and 6.00 p.m. (an hour earlier in winter). At the same time, the queue of villagers holding their empty cans forms at the front of the building, waiting for the milk to be dispensed from the milk cooling tank. The remaining milk goes to AMUL, the milk processor in this state, Gujarat.

Ingrained

This ingrained behaviour takes place in peace and quiet. Standing in the long queue on 10 November at 6.10 a.m., it is



The milk is filtered to remove any impurities.

Twice a day, outside the Sandesar Milk Producers' Co-operative Society in the village of Sandesar two queues form. In the morning and evening, the local dairy farmers stand in line to deliver their milk. In the second queue stand the consumers with their empty cans.

the turn of Mrs Chavhan Bhambh to shuffle into the dairy co-operative. Because the milk must be visibly clean, she allows her milk to be poured through a filter. Then she pours her milk into a small tank standing on a set of scales. This tank is connected to the large milking cooling tank. Mrs Bhambh is shown doing this on the front page of this Dairy View.

Before the milk is weighed, the man at the scales takes a sample that he passes to the man at the testing equipment. The weight data and test data are both sent to the computer. And seconds later the co-operative employee working the computer gives Mrs Bhambh a slip of paper. This is her proof of delivery: 2.5 litres of buffalo milk containing 5.1% fat. For the morning milk, she is owed 28.45 rupees or 57 eurocents. She takes her receipt a few steps further to the paymaster's booth. She passes her receipt through the bars and the paymaster gives her 25 rupees; the remaining 3.45 are recorded in the ledger. She'll be paid that money when she brings her buffaloes' evening milk.

Consumers

While the dairy farmers are bringing their milk, the residents of Sandesar are standing in line at the front of the building. They are holding cans and will collect and pay for milk for one day. There's no point buying this unpasteurised milk for several

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days: it will go off in the heat and most families don't own a fridge.

Ramanbhai Maganbhai Patel is the chairman of the dairy co-operative: 'Not everyone's collecting their milk here, by the way. In our village we have agreed that the co-operative will deliver milk to people over 70 years of age. The daily milk surplus goes to AMUL, our state's dairy co-operative,' says Patel.

He is unequivocal about the quality of the milk. 'We don't have any problems. We establish the fat content. Payment is based on that. But if we don't trust a dairy farmer's milk, we send milk samples to AMUL. If it turns out that there's something odd about the milk, we turn away the dairy farmer involved and his or her milk. That's a real blow for the individual. After all, milk production is the means of his or her living.'

Small dairy farmers

The dairy co-operative set up in Sandesar in 1952 has, says its chairman, 872 members, 792 men and 80 women. Together they keep 630 buffaloes and 180 dairy cows. Some 240 dairy farmers have no land of their own. Their animals are tethered at home or roam looking for food close by. Most co-operative members, 477 to be exact, work no more than two hectares, while 155 members have two hectares or more. As well as keeping dairy stock, in Sandesar's tropical climate the inhabitants cultivate tobacco and bananas.

The co-operative is seeing its milk collection rise year on year. 'In our first year, 1952/53, our daily milk collection was 125.7 litres of cow's and buffalo milk,' tells Patel. 'That rose to 410.7 litres in 2002/03, while now, in 2004/05, we are already collecting 510.54 litres per day. I assume



The milk's fat-content is established. Subsequently, the receipt for the milk collection, noting fat content and the total money owed that morning, scrolls out of the printer.

the procurement will continue to increase, after all, we are able to pay our members a good price for their milk. Including bonus and retrospective payment, the price has risen from 22.6 eurocents per

between 12% and 15%. Ours is always more than 20%, last year it was even 24%. Our dairy farmers produce mainly buffalo milk, which has a higher fat percentage than cow's milk. That's why our pay our villagers a higher price. We pay per litre, but are paid in turn by AMUL per kilo. That also makes a difference. When the milk

arrives, we take a sample from each bucket to determine the fat content and then we weigh the remaining milk to establish the number of litres delivered. But, of course, the sample that's been removed ends up in our co-operative's milk cooling tank. By being smart in what we do, we are able to pay our dairy farmers a good bonus.' <<



The paymaster at work.

litre in 1989/99, to 28.6 cents in 2004/05. Something like 17.5 cents is the standard price, the remaining 5.1 cents includes the co-operative's bonus for its member dairy farmers.' And he adds proudly, 'Most village co-operatives are able to pay their dairy farmers a retrospective payment ranging

Milk strike leads to the birth of the co-operatives

It is 1946. The colonial British rulers have given a private firm the exclusive right to collect milk from the many dairy farmers in a number of villages in the district of Kaira (Gujarat state in north-west India). This area is some 400 km north of Bombay, a city of more than one million residents, (now Mumbai) and is known for its dairy farming. Tension is growing; the farmers believe the firm is paying too little for their milk. But they are helpless in the monopoly situation created by the British. A group of dissatisfied dairy farmers asks advice of a well-known Indian politician. He advises them to pour their milk away, en masse. 'But', adds the old and wise politician, 'it must be a mass action, everyone must take part. And you must ask the British rulers with one voice if you can set up dairy co-operatives in your villages.'

And so it happened. The next time the monopoly milk purchasers travel to the countryside of Gujarat, they find all the dairy farmers against them. Before their eyes, the dairy farmers pour away their milk day after day. The milk supply from Gujarat to Bombay dries up. The colonial rulers realise that popular revolt is likely and quickly concede. The dairy farmers of Gujarat are permitted to set up dairy co-operatives in their villages. They also gain the right to collect milk throughout the state and to sell it to the rulers. The first co-operative began more than 60 years ago, with a daily milk collection of 250 litres. Today, the dairy farming in Gujarat has developed along the lines of the Anand model. Anand is just a small, quiet town in Gujarat, but it's the birthplace of the state's village co-operative system. Much of the unpasteurised milk received by the co-operatives is sold in the local community. The remaining milk is collected by the Milk Unions and transported to the milk-processing companies that are organised by state. In the state of Gujarat, the Milk Union is the Gujarat Co-operative Milk Marketing Federation Limited, otherwise known as AMUL. <<

Indian dairy marketing must improve

This is the view of Amrita Patel, chairman of India's National Dairy Development Board (NDDB). According to her, the Gujarat Co-operative Milk Marketing Federation, also known as AMUL, is the only business that has sorted out its marketing and brand policy without government intervention.

The dairy farmer's interest

'Our dairy co-operatives have become very good at collecting the milk in the many thousands of villages, and in processing that milk. But I find that the dairy co-operatives outside the state of Gujarat are too lackadaisical about the marketing of their products. And when the co-operatives



Amrita Patel is chairman of India's National Dairy Development Board.

'The marketing carried out by the Indian dairy co-operatives must improve. We will have to work on that in the coming years, use professionals and, above all, create an enterprising culture.'

aren't able to sell their milk and dairy products at a profit and enlarge their markets, they lose the ability to collect more milk in the villages. Then the members/dairy farmers of the local dairy co-operatives suffer. On the one hand, they don't see their milk price increase and, on the other, they can't increase their milk production,' says a concerned chairman Patel.

In its role as supporter of the Indian co-operative dairy sector, the NDDB has recently been making proposals to improve the marketing efforts. 'We have hired consultants, organised marketing courses and provided the co-operative dairy sector with interest-free loans so that they can conduct market campaigns. And, as an institution, we ourselves have spent a great deal of money on national marketing promotions for dairy products. In spite of all this investment, we have to admit that we've seen less improvement than we would have liked. And that is not good, especially considering the growing competition from the multinationals and other major commercial players in the dairy sector,' says Amrita Patel.

Joint ventures

But, in the interests of the co-operative dairy sector, Patel is not planning to stop here. 'We have re-analysed our problem. The co-operative dairy structure has grown and that has made it very difficult in a number of Indian states to be market-oriented. That is especially true of those states in which the government is very

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involved in the dairy sector,' says Patel, outlining the problem.

To resolve this situation, the NDDB has decided to support marketing alliances and joint ventures that the state co-operatives enter into with Mother Dairy, a dairy co-operative, with a view to improving their marketing. In Patel's opinion, this full subsidiary of the NDDB has good marketing



Better marketing of dairy products should raise the income of the Indian dairy farmer.

professionals and a well-balanced business culture. Mother Dairy's philosophy is to have a majority interest in any such



The Anand model has been extended to almost all Indian states. The NDDB is playing an active role in this expansion.

joint venture. This should ensure that the government has no voice in the collaboration. Furthermore, the proposed model is designed to create enough flexibility in the partnership that a commercial approach can be taken in this highly competitive environment.

Nevertheless, this new idea put forward by the NDDB has caused quite a stir in India's co-operative dairy sector. The collaboration the NDDB is proposing between its subsidiary co-operative Mother Dairy and the other dairy co-operatives appears to be completely at odds with the efforts being made by the AMUL dairy co-operative AMUL in the state of Gujarat. As the next article explains, AMUL is currently developing a strategy to market the products of its colleague companies throughout India under its own brand names AMUL and Sagar.

Many tasks

The NDDB has, incidentally, a wide range of activities. As shown above, it promotes and funds the organisation and development of the Indian dairy industry. It also contributes to the development of the market, and is the research & development institute for the Indian co-operative dairy sector. In this context, it is developing new and longer-life dairy products.

The NDDB also develops and builds dairy factories, milk tankers and even the sales vending machines for loose, fresh drinking-milk. Through another subsidiary, the NDDB makes vaccines for beef cattle and people. Through its full subsidiary Mother Dairy, the NDDB is moreover involved in the production of vegetables and fruit in India and via Dhara Oils and Foods Company (DOFCO) in the production and sale of edible oils. <<

The Anand model throughout India

In the 1950s and 1960s Indian dairy production hovered around the 20 billion kg per year mark. Owing to the continued population growth, the amount of milk available daily per Indian fell from 124 gram in 1950 to 113 gram in 1969. The only place where the milk production was sufficient, was the area around the city of Anand in the state of Gujarat. There, the Anand model had been developed. Thousands of village dairy co-operatives were supplying their local communities with milk and District Unions were collecting the remaining milk in the villages. The District Unions processed the milk into dairy products and delivered these products to the State Milk Federation, namely the Gujarat Co-operative Milk Marketing Federation or AMUL, which then sold the products in the cities. The system's advantages were soon apparent. First, the Anand model works with minimum government intervention. It ensures that the smaller dairy farmers are paid their milk money immediately and in cash, which reduces the amount of money raked off. Moreover, this co-operative system provides its member dairy farmers with the services they need, ranging from deliveries of food concentrates, veterinary support and artificial insemination to milking courses. The Anand model has, in fact, given the dairy farmers themselves the instruments for rural development. Indeed, the economic advantages of this co-operative structure are evident in the families of the dairy farmers and in the village communities.

In 1964 India's Prime Minister, Bahadur Shastri, visited Anand to open an animal feed factory. He spent the night in a village in order to see for himself the value of the co-operative model. The following day in a discussion with Dr V Kurien, the now 83-year-old icon of the Indian dairy sector and still the chairman of AMUL, Bahadur Shastri expressed the wish to see the Anand model introduced throughout India. Kurien was keen to oblige but felt that the government must found an institution to facilitate this, and that the institution should be established not in bureaucratic New Delhi. And so, towards the end of the 1960s, Dr Kurien became the director of the National Dairy Development Board (NDDB) in Anand. He has since been succeeded as the NDDB's chairman by Amrita Patel. It is to Kurien's credit that he has extended dairy farming and the dairy industry across the whole of India, using the Operation Flood programme as the vehicle. The dissemination started in the early 1970s with unorthodox methods. Milk powder, supplies of which were being donated to India as food aid, was regularly converted into drinking milk and then sold to consumers in the major cities at normal prices. The funds that this generated were then used by the NDDB to improve the dairy herd and to organise the production, collection and processing of milk in other parts of India. India has carried out an Operation Flood programme three times in the past 30 years. As a result, today 12 million smaller dairy farmers are members of 108,574 village dairy co-operatives in India, and these co-operatives have milk-processing companies in 176 districts. The dairy products reach the Indian consumer via the 22 State Milk Federations. And with 229 gram of milk per capita, these Federations have 100% more milk at their disposal than they did in 1969, thanks largely to the Anand model. <<

Astrology predicted a future in milk

A dusty main road full of chaotic traffic takes us one morning from New Delhi to Ghaziabad in the state of Uttar Pradesh. Three hours later we are sitting across from entrepreneur Anil Gupta and his wife. They have a factory in which all sorts of metal parts are produced, including transformers. The factory's turnover is some EUR 1 million. Since 2000 they've owned Kanha Dairy Farms, a cattle company and hi-tech farm, which is bringing in an annual turnover of EUR 300,000.

Ongoing growth

'I am very interested in astrology. I know our futures are written in the stars,' says Anil Gupta. 'When I had my future predic-



Industrialist and dairy farmer Anil Gupta with his wife.

ted in 2000, my astrologer said that I could serve a large black animal. And that animal would bring me good fortune. I remember

In 2000 the industrialist Anil Gupta visited his astrologist. A large black animal would bring him prosperity. In 2005 he is one of the bigger dairy farmers in the Indian state of Uttar Pradesh.

that I laughingly mentioned buffaloes and cows to her. Six months later I started doing the sums. Then I found out that dairy farming is a sector with good returns, provided that you get the sales side sorted out properly.'

Straight away, Gupta bought buffaloes and dairy cows. The company's emphasis is on the buffaloes because they give milk with a higher fat content. Indians find cow's milk a little thin. Adjoining his factory, he set up a dairy cattle company housing the buffaloes and cows. In mid 2002 he had 78 buffalo and 30 dairy cows. In 2005 the stock had grown to 130 buffaloes and 120 dairy cows. Partly in response to objections by the Ghaziabad local council, he has moved most of his livestock from the industrial site to the countryside two kilometres from his factory. The new dairy cattle company appears to be set up to accommodate continued growth.

'That's right. I eventually want to have a dairy herd of 1,000 animals. There's plenty of room for that. My animals are currently producing 1,700 litre of milk per day. But I have so much demand that I could sell 8,000 litres of milk every day.'

Healthy cattle stock

The Kanha farm currently employs 40 people. Some 18 Indians are working for the dairy cattle company itself, 15 distribute the milk in the city, while Gupta has another 7 employees in staff positions and administrative support. All this is necessary to guarantee the sale of the

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milk to the company's 800 customers in Ghaziabad. 'The families know that the milk at our cattle company is produced under the most hygienic conditions,' says Gupta. 'Our animals have clean accommodation, and the milk is stored in milk cooling tanks as soon as it is produced. The tanks keep the milk at a temperature between 4 and 10 degrees Celsius, closer to 4 than to 10 by the way. Our people have been trained to milk the animals in a hygienic manner. Before milking, the teats are dipped. If we have to treat an animal with antibiotics, its milk is not sold to the consumer for the first four days after the treatment. We employ a vet and he helps ensure that our animals are healthy and he keeps their stress levels down.'

Gupta points out that the feed is another area in which they do everything they can to reduce his livestock's susceptibility to disease. The feed for the buffaloes and dairy cows consists of cottonseed waste, full-cream soya pellets and waste products from wheat, rice and peanuts. A selection of India's wild herbs is added to create a complete animal feed.

'High quality milk is the result. We have our milk continually tested by a laboratory, not only for its fat content. Bacteriological tests are also carried out. And when our consumers request it, the milk can also be tested for other elements. We want to supply milk as transparently and clearly as possible, while also taking account of all the food safety rules,' stresses Anil Gupta.

Remarkable distribution

The local television station and the local media have turned their attention to the Kanha Farm several times in the last five years. Thanks to this coverage, the more than 8,000 families who get their daily milk



The stainless steel tanks are rinsed. The bicycles stand ready for the evening milk distribution in Ghaziabad.

from Gupta are convinced that this cattle company delivers the best milk in their city. And anyone who doesn't yet share that view can see Kanha Farm with his own eyes, an opportunity that many schools and families in Ghaziabad have eagerly seized.

The smart entrepreneur has also developed a remarkable system to supply his customers with buffalo and cow's milk. A month in advance, the customer buys a coupon

milk can under the tank's tap. One tank is filled with buffalo milk, the other with cow's milk. 'By delivering milk twice a day straight from the milking cooling tank, the milk doesn't get a chance to go off. Even though the milk is unpasteurised, the bacteria simply don't have enough time to grow,' says Gupta.

'Completely reasonable' is how he describes the prices he gets for his milk 'The consumer pays 23 rupees (46 eurocents)

too sell their milk in the city. But at considerably lower prices. Gupta's buffalo milk fetches a price of 23 rupees, while the city dweller pays some 20 rupees or 40 eurocents for the co-operative's milk. The price difference is similar for cow's milk. The entrepreneur has an explanation for this: 'The milk from my cattle company is the best in the area. We are working with the animals all day long here. My people are trained to do their work, they work on the animals' health status and, what's more, they are supported by our own vets. And we pay attention to the animal feed. All that expertise isn't available to the DCSs with their mostly small dairy farmers with no more than three animals per farmer. Many families regard the price difference as a sort for insurance premium for better food safety,' says Gupta, voicing his views.

Talking of insurance, Gupta's distribution system has its own built-in safeguards. 'I don't take any risks. Each coupon book with all its unique daily numbers is entered in the computer. We know exactly which day coupon with which number was bought by which family. With this system we know we'll get our money and we aren't susceptible to fraud. We don't deliver on tick, so we have no money outstanding with our customers.

The result is a profitable dairy cattle company, with an average net profit of more than 20% per year. That seems a lot but it is essential if we are to continue growing and get our livestock up to 1,000 animals,' says this enthusiastic and modest entrepreneur and dairy farmer. <<



The buffalo and cows in the new stall at Kanha Farm.

book. A family buy a book for the daily delivery of a half litre, a litre, two litres or more. Payment is, thus, in advance. Twice a day 15 cyclists travel round the city pulling small stainless steel tanks made in Gupta's own factory to deliver milk to the customer. They tear one coupon from the book and then the housewife can hold her

per litre for the unpasteurised buffalo milk. The lower fat cow's milk costs 21 rupees (42 eurocents) per litre. Indians prefer to drink buffalo milk. Its higher fat content gives it a better taste.'

Gupta points out that in and around Ghaziabad the smaller village dairy co-operatives (DCS) are also active and they

AMUL, India's number-one dairy brand

According to Mr Khanna, an AMUL director 'with special assignments' – as his business card says – the milk supply to his co-operative is increasing all the time. In the 2003/04 financial year, the milk collection was up to 5.1 million litres per day, a rise of some 15.2%. By contrast, the co-operative's turnover rose by just 1.4%

On 14 December 1946 the predecessor of the Gujarat Milk Marketing Federation, better known as the AMUL dairy co-operative, was founded in Kaira (Gujarat state). The daily milk collection was 247 litres. Anno 2005 the 2.4 million members/dairy farmers supplied AMUL daily with 5.9 million litres of milk.

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world market. AMUL's exports of consumer-ready dairy products grew by no less than 40% in the financial year 2004/05. At the same time, we were able to maintain our exports of UHT milk, ghee and paneer or cottage cheese at the previous year's levels.'

Wide range

The co-operative dairy's product information reveals a wide product range. But the relationship between the major product



Paneer (cottage cheese) is an ingredient in many Indian dishes. It is an important source of animal protein, especially since many Indians eat neither pork nor beef.

in the financial year 2004/05, bringing it to INR 29.22 billion or EUR 584 million. This growth is lower than expected and due, believes Khanna, to the reduced milk

supply in the latter months of 2004 and the poor increase in the price of basic products in the early months of 2005.

Co-operative operation

From what Khanna is saying, it is evident that AMUL is a co-operative operation without equal. The 2.4 million members/dairy farmers in the state of Gujarat are grouped into 11,615 village co-operatives equipped with both testing equipment and a milk cooling tank. Some of the unpasteurised milk is sold to the villagers. The rest is transported by milk tankers twice a day to the 12 district Milk Unions in the state. These Milk Unions process the milk by using the services of 24 processing companies. The output of dairy products reflects the order submitted by the state's marketing body, the Gujarat Co-operative Milk Marketing Federation. These products are then sold throughout India under the AMUL and Sagar brand names. In addition, AMUL's dairy exports are showing an upward trend. For example, in the last financial year (2004/05) exports reached INR 1.15 billion or EUR 2.3 million.

'The EU's reduced export subsidies have given us an excellent opportunity to export low-fat and full-fat milk powder,' says AMUL's chairman Verghese Kurien, explaining the export trend. 'We have shown that if a level playing field is created, Indian dairy products can be successful in the



Pasteurised milk is one of the most important products of the Gujarat-based dairy co-operative, known for its brands AMUL and Sagar.

groups isn't evident from either the annual reports or the words of the co-operative's spokespeople. One trend is clear, however.



Mithai is an example of Indian sweets made with sweetened condensed milk. As AMUL delivers this product in cans, it has a shelf life of nine months and can be stored outside the cool chain.

introduced some 900 food wholesalers in these smaller cities to its product range. 'This initiative has already started yielding results. AMUL products are increasingly available in smaller cities throughout India. This initiative, which we'll be continuing for the time being, is generating additional turnover,' says Kurien. Director Khanna describes the second prong of AMUL's expansion plan. 'We expect that the milk production in our procurement area, the state of Gujarat, will increase by 5% or more per year in the coming period. That's the first source of growth. As not only the dairy market but also the market for farm milk has been liberalised, we are now collecting milk in six other places in India milk. What is new that we would like to talk to other co-operative dairy companies. Most of them are also organised by state following the Anand model. Our standpoint is clear. They know about milk processing and we know about marketing. They can continue to produce dairy products that we will sell under our strong AMUL and SAGAR brands. In this way, our partners will be able to piggy-back on the success of AMUL's ever expanding distribution network.' He foresees a future in which the players in India's co-operative dairy world increasingly cooperate to offer the Indian consumer a wide range of dairy products. It is completely obvious to him that AMUL will be a driving force in shaping this new future. 'AMUL is India's oldest dairy brand. But it is more than a brand. It is also a question of belief. Belief in the co-operative, in a dairy world owned by the dairy farmers. That is important because they and the rest of the population in the villages must be pulled up to a higher standard of living,' says AMUL director Khanna, speaking straight from the heart. <<

Indian consumers are increasingly showing a preference for packaged dairy products, due to food safety concerns. This explains in part why the revenues of AMUL's consumer range of packaged dairy products grew by 11.8% in the last financial year. The sales revenue of pasteurised drinking milk in plastic pouches under the AMUL brand rose in 2004/05 by no less than 36%. This rise was attributable chiefly to the successful introduction of AMUL milk more than a year ago in the Indian city of Kolkata (formerly Calcutta), home to millions of people. Thanks to this success, the pasteurised milk pouches are the biggest contributor to AMUL's total turnover. In the 2004/05 financial year, this range brought in a turnover of INR 6.26 billion or EUR 125 million. The turnover of UHT milk grew 23% in the last financial year compared to preceding year. The turnover of ice cream rose by 10%, consolidating AMUL's position as market leader. And despite cut-throat competition, the sales of AMUL brand butter rose by 4.5%. The sales of cheese and cheese spreads rose by 21%. Cheese includes cheese for pizzas. And, says Kurien, other packaged products such as flavoured milk, fresh cream, paneer or cottage cheese also have the potential to

become major products bearing the AMUL brand within a couple of years.

Complex distribution

While the annual report mentions rising exports, AMUL's opportunities to continue increasing turnover lie principally in the Indian domestic market. AMUL currently has 47 sales offices throughout India. These offices maintain links with more than 3,000 wholesalers and more than 500,000 shops of varying size. But this infrastructure has room to grow: it is too small to make AMUL a national brand in the domestic market of more than one billion residents. As the country's largest co-operative dairy, AMUL has developed a two-pronged strategy to address this issue and develop national presence. Firstly, last year AMUL expanded its distribution network to include some of India's smaller cities. In so doing, the co-operative has responded quickly to rapidly changing market conditions. Situated all over India, these smaller cities are now promising markets with great purchasing power as the incomes of India's middle class are rapidly rising and the better-off rural families are migrating to these developing cities. In the last financial year AMUL has

Gouda cheese and cottage cheese of Flanders Dairy

The company is managed by 43-year-old Sumil Bhu and his 27-year-old nephew Gaurav Jaggi. At the time of our visit, uncle Bhu was visiting Italy, where he hoped to see typical Italian cheeses being made. Jaggi can't drag himself away from his work. Together with eight employees, he is kneading Mozzarella balls.

In Belgium

Then he takes a break to relate a story, 'My uncle went to Belgium in 1982. He learned to make Gouda cheese there. His ambition was to start his own cheese factory.' He achieved that ambition in 1996 in Bijwasan.

In the village of Bijwasan near the capital New Delhi there is a private dairy company with a particular name. It is Flanders Dairy Company. And yes, it appears to be a Flemish dairy enterprise.

In the summer period some 1,800 litres of buffalo and cow's milk is processed. In the hot period, demand in this already niche market isn't high. In other seasons the amount of milk processed daily rises to 2,600 litres.

'We pay the dairy farmers for their milk's fat and other components,' explains Jaggi. We know our dairy farmers and know they

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poor milk leads to poor cheese. All our milk is pasteurised. Our current pasteuriser has a capacity of 400 litres per hour but given our steady growth we want to switch to new equipment with an hourly capacity of 800 litres.'

Wide range

In a modest, completely tiled space, Flanders Dairy makes a range of dairy products. In an old but clean cheese tub by Van 't Riet the Gouda cheese is made in four varieties, plain, with cumin, with pepper and smoked. Standing in a corner is the equipment for sour cream and cottage cheese, while nearby Mozzarella is kneaded by hand into balls, under a familiar poster issued by VLAM, the Flemish sales organisation. 'Tasty cheese is Belgian' reads the slogan. Housed on the floor below are the modest brine baths for the Gouda cheese, the filling system for Mascarpone and cottage cheese and two smaller cold stores. 'We are aware that we make a wide range of dairy. We have to, because in India cheese is still very much a niche market. We mainly sell our cheese to hotels in big cities, but prosperous Indians, too, are increasingly aware of the health benefits of eating cheese. Our sales rise, slowly but surely. Last year our turnover was INR 33.5 million (EUR 670,000). For this year we are expecting a rise in turnover to INR 42 million (EUR 840,000).' This forecast is partly due to the fact that price-making forces are working in the Dairy's favour. Flanders Dairy sells quite young Gouda cheese for INR 520 (EUR 10.40) per kg. No Gouda cheese imported from the Netherlands can compete with that. 'The taxes at the Indian border raise the price of a kilo imported Gouda cheese to about 900 rupees (EUR 18),' explains Jaggi. <<



At Flanders Dairy the Mozzarella is kneaded by hand.

Jaggi, who was then finishing his secondary education at an agricultural school, joined the company in 1998. The cheese-making uses milk from local dairy farmers.

produce good quality. Besides, if there is ever any doubt, we send a milk sample to a specialist lab for testing. That isn't usually necessary. Our dairy farmers know that

Karnal Milk Foods seeks partners

G.P. Gupta founded the company in Karnal (130 km north of New Delhi) in 1992, following the government's liberalisation of the Indian dairy sector. Gupta was one of the larger dairy farmers there who felt that the village dairy co-operatives were paying their dairy farmers too little. A number of larger dairy farmers were located near Karnal. The factory still stands in the middle of his milk collection area. The company gets the milk from its suppliers (often milk traders themselves) tested by a small, local milk testing station.

Greater capacity

In that first year, Karnal processed 100,000 litres of milk every day. Today, that figure is up to 350,000 kg. The company has the capacity to process 400,000 kg milk per day. Annually, the company processes more than 100 million kg milk. In the high season, from October to June, 250 people are employed. That number falls to 150 in the summer period, when the heat is extreme. The milk supply drops of considerably then. This milk goes to make a range of industrial products such as full-fat and low-fat milkpowder in various types of packaging, butter, ghee and coffee creamers. These products find their way to other Indian dairy companies, such as Nestlé India and Mother Dairy, to the Indian army and the pharmaceutical industry and Indian grocers' shops. By the time they reach their end customers, they could be bearing a private label, the brand of another dairy company or Karnal's own Super Cow and Karan brand names.

This supply chain also includes foreign dairy products since Karnal also has an import division that buys products all over the world. Its range includes colza oil, lactose, whey protein and sweet whey

The privately-owned dairy business Karnal Milk Foods exports to various countries in the region and is seeking international cooperation.

powder. Major suppliers are New Zealand, Australia and a few European countries, including Switzerland.

'We have to import,' indicates Vipin Gupta, son and managing director. 'The company's turnover is currently growing at 5 to 6% per year. The reason for this somewhat slow growth is that we don't actually have enough milk available. The buffalo and cow breeds aren't able to keep pace with our customers' growing demand.' At the same time, Karnal Milk Products is also

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to offer only cow's milk dairy products,' says Gupta.

Cooperation

He stresses that his company is keen to work in an international partnership. A joint venture would be a good option, enabling a foreign partner to input techniques and technology, as well as knowledge of the retail channel. 'Karnal Milk Products is good for an annual turnover of EUR 20 million. As well as industrial products, we want to produce drinking milk and cheese. Since most consumers have no cooling facilities, we are thinking of UHT products. By cheese we mean the cottage cheese or paneer that is an ingredient in all sorts



Father and son Gupta of the privately-owned dairy company Karnal Milk Foods Ltd.

exporting some of its products, mainly butter and ghee. Important export countries are Bangladesh, Egypt, Saudi Arabia, Pakistan, Nepal, Mauritius and Nepal and, as of recently, China. 'We have just one important problem with exporting: we have to keep reiterating that 95% of our products consist of a mixture of cow's and buffalo milk. Other parts of the world tend

of Indian dishes,' explains the managing director. Gupta believes that by focusing on increasing its production of consumer products, the company can improve its profit margins. 'You see, although the quality of our industrial dairy products is excellent, it is increasingly difficult to maintain an edge in that highly competitive, international market,' says Vipin Gupta. <<

Dairy distribution very fragmented

According to Rabobank India, milk, a fragile product, is sold in India through a wide range of sales points. These are described briefly below.

Unpasteurised milk

The sales process starts right in the many villages where the local dairy cooperatives sell their unpasteurised milk straight to



Most farm milk remains unpasteurised in the countryside. Consumers are shown waiting for their turn to buy milk from the village co-operative's cooling tank.

consumers from the cooling tank. In the towns, other dairy farmers sell their milk direct to the consumer. In all, 44% of Indian milk production is sold unpasteurised to consumers in this way.

The remaining milk is transported from the village co-operatives to the co-operative

The distribution system for milk and dairy products in India is unusually fragmented. But in that respect dairy is no different from other foods; less than 1% of food is sold through the official retail channel.

milk-processing industry, which is organised at state level. These businesses make pasteurised milk and other consumer products from the milk delivered to them. One such organisation is the Gujarat Co-operative Milk Marketing Federation, which sells its products under the AMUL brand. This co-operative turned over EUR 584 million in 2004/05. The number two business, the Mother Dairy cooperative based in New Delhi, recorded a turnover in the 2003/04



A sales kiosk run by the Mother Dairy co-operative in New Delhi.

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financial year of almost EUR 150 million. All dairy co-operatives have their own sales channels for packaged and loose pasteurised milk and other dairy products. One example is the many hundreds of Mother Dairy kiosks. Here, the consumer can buy a half-litre pouch of pasteurised milk. This milk is cooled in the kiosk, together with a very limited selection of the dairy co-operative's other fresh-milk products. Other consumers find it more convenient and/or cheaper to buy loose pasteurised milk. They buy a token at the kiosk and place their own milk can under the tap built into the side of the kiosk. Once the token is inserted, the ordered quantity of milk flows from the tap into the can. Privately-owned dairy companies distribute



A Mother Dairy sales vending machine dispenses loose pasteurised milk.



Many French cheeses in the new Modern Bazaar department store.



In a shop frequently mostly by foreigners, we found Vergeer Cheese Edam cheese and Friesland Cheese Gouda cheese.

their products through India's family-run corner shops. These products tend to be distributed locally because a cooled chain barely exists.

Local markets

The main outlets for the traditional ethnic sweets made from sweetened condensed milk are the halwas or sweetshops. They are located in the many markets of every Indian city. Most markets are official and set up by the government, but guided by Arnold Parzer, Agricultural Counsellor representing the Netherlands Ministry of Agriculture, Nature & Food Quality in India and Sri Lanka based in New Delhi, I visited an illegal market. The visit wasn't pleasant, particularly making our way through the maze of narrow alleys as dusk fell and vermin like rats, mice and cockroaches scurried away before us. And then, right

in front of us, stacks of cages piled high, all holding chickens to be slaughtered and plucked. It was strikingly obvious how a flu epidemic can be triggered in Asia. The visit lasted just a few minutes; I'd seen more than enough. Other visits made it clear that Indian retail is modernising at a rapid pace. On New Delhi's southern edge, we visited a hurriedly erected shopping centre. In the Modern Bazaar department store part of the cold store was set aside for dairy products like drinking milk, butter and cheese. These included a large number of French cheeses, including the LeBon brand by Fromagerie Bel. In a specialist grocer in the capital, near the neighbourhood where many European diplomats live, the wide range of foreign cheeses was remarkable. As well as cheeses from New Zealand and Australia, the selection included Vergeer Cheese and Friesland Cheese products. <<

Wider product range desirable

In the coming years the Indian dairy businesses must strengthen their position by selling a wider product range and by increasing their product availability throughout the country. This has been shown by a study conducted by Rabo India. The report also reveals that consumers prefer packaged drinking milk to milk sold loose due to their concerns about food safety. Meanwhile, the Indian markets for flavoured milk and long-life drinking milk are growing. At present, however, both products are at the niche-market stage.

The big opportunities for the dairy businesses are in dairy products with high added value, such as paneer or cottage cheese and Indian ethnic sweets based on sweetened condensed milk. This market has always been dominated by unorganised players who lack any clear marketing and whose products are of mediocre quality. In recent years both co-operatives and privately-owned dairy businesses have launched long-life and high-quality brand products on the market. They have the technology and machines to offer these products at a much lower price than their competitors. The market for other products like butter, ghee and ice cream is very competitive. It is dominated by three or four regional Indian players. Businesses looking to enter this segment in India will have to present innovative products with high added value if they are to succeed. Rabo India concludes that most multinationals active in the Indian dairy sector have focused on premium products that tend to be produced in small volumes. This is primarily due to the difficulty of investing in the availability of good quality milk, which fresh-milk products require. But recently, two trends have been observed: the switch to fresh-milk products that can be marketed in large quantities, and to products with high growth percentages, such as packaged drinking milk. <<

Food safety moving up the agenda in India

These are the words of Arnold Parzer (63-years-old), Agricultural Counsellor representing the Netherlands Ministry of Agriculture, Nature & Food Quality in India and Sri Lanka. For years, India, an enormous country of more than one billion inhabitants was a loyal ally of the Soviet Union. The collapse of the Soviet Union and the end of communism have inspired India to reform its economy. Today India is a member of the World Trade Organisation and, slowly but surely, has joined the world economy. According to Parzer, India's size and central position in Asia alone make it an important country. Many developing countries look to India and in this group, known as the G77, India often assumes a leading position.

Enormous differences

'India's economic growth is relatively strong, more than 6% per year. But that growth is the consequence of the healthy development of the industrial and services sectors. The growth of agriculture as a whole varies enormously from year to

'Since independence in 1947 India has pursued a socialist development model. The chief concern of that model was self-sufficiency. Only in 1991 was a start made with liberalising the economy and the dairy sector.'

year; it depends in part on the weather. In years of heavy rainfall and flooding and in drought years, growth is negative. But when monsoons and drought leave milder marks on the land, the economic growth in agriculture can exceed 8%. Indian economists believe that growth of at least 10% is a prerequisite if agriculture is to be the engine of India's economic growth across all sectors. But Indian agriculture is still a long way from that target. In the 1980s, growth in the agricultural sector was 3.9% per year. But in the 1990s it fell back to 3%,' says the Agricultural Counsellor. Horticulture and agriculture are very important to the Indian economy; their share of GDP is 23%. Moreover, two-thirds of the Indian population lives and works in the country. 'It is better that these

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people stay there, too. After all, there aren't enough opportunities for them in industry. On the other hand, some two-thirds of the Indian population lives below the poverty line. We're talking about 600 to 700 million people. They tend to live in small rural communities and have few prospects. The Indian government recognises this enormous problem, but due to India's pervasive bureaucracy and lack of infrastructure, little is being done by government to lift the population out of poverty,' continues Mr Parzer.

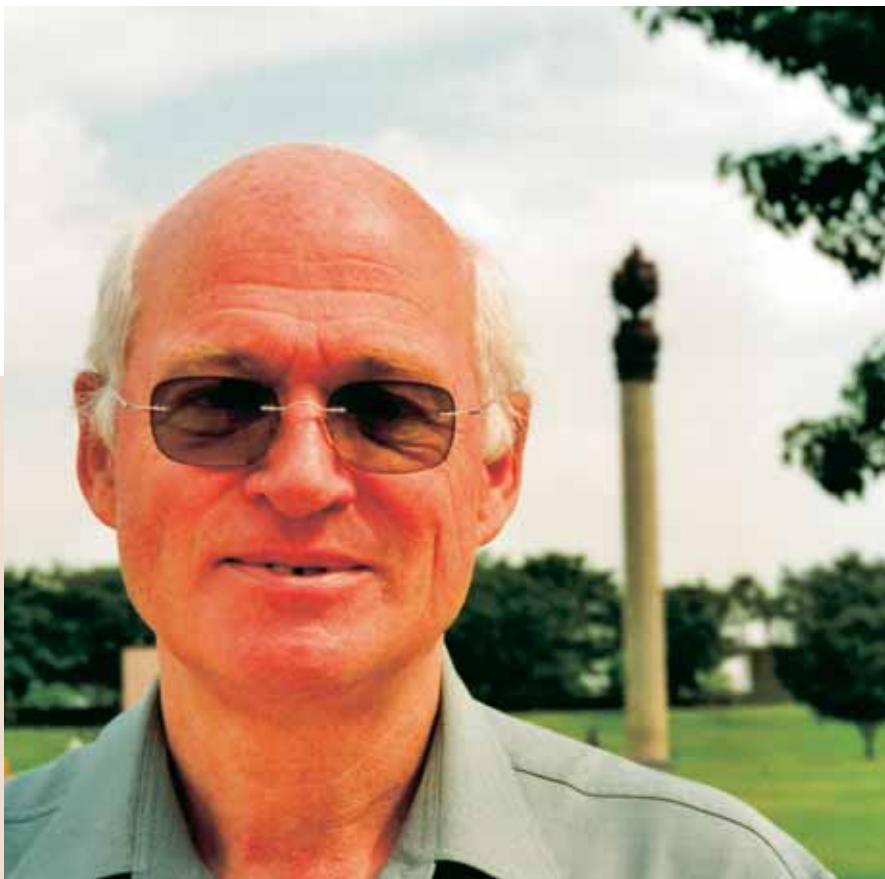
Dairy quality

Just 2% of India's primary agricultural production is processed by industry, according to the Agricultural Counsellor. The same is true of the dairy sector. At macro level, with an output of 92 billion kg in 2003/04, India is the world's largest dairy producer. Annually milk production increases by 5%. 'But if you look at this production at micro level, then you see that no less than 85% of total milk production goes straight to the consumer. That cer-

Foreign trade not extensive

According to Arnold Parzer, Agricultural Counsellor in India, India's foreign trade is not that great compared to GDP. Imports and exports together are no more than 20% of GDP. India's share of world trade is less than 0.7%. As far as Dutch exports to India are concerned, the Netherlands stands in 21st position with a share of a 0.9%. India buys products to the value of EUR 770 million from the Netherlands. In terms of exports from India, the Netherlands is in 13th position, with 2%. India exports goods to the value of EUR 1 billion to the Netherlands. Parzer also has figures about the agricultural trade between the two countries. 'In the export of foods to India, the Netherlands is in 16th place with EUR 21 million. Important products are low-fat milk powder, vegetable oils, horti-

cultural seeds and ornamental plant products. The United States holds the number one position with EUR 150 million and is followed by Myanmar and Pakistan.' In terms of the export of agricultural products and foods from India, the Netherlands is in 6th place, with EUR 172 million. A significant part of this (EUR 70 million) relates to the export of fruit, gherkins, onions and peppers to the Netherlands. With imports of EUR 520 million, the United States is the most important export country for Indian agricultural products and foods. The main items are fruit, nuts, spices, shellfish, oils, coffee and tobacco. After the United States come Saudi Arabia and the United Arab Emirates. One area in which the Netherlands does hold number the one position is investment in India, ahead of the United States, Pakistan, Japan and Great Britain.' <<



Arnold Parzer, Agricultural Counsellor in India, at the monument erected outside Chennai (Madras) in the south of India, at the site of the murder of former Prime Minister Rajiv Gandhi by a terrorist on 21 May 1991.

tainly constitutes a health problem. After all, the milk is subject to no quality control at all. There are millions of small dairy companies with one or two cows or buffalo lacking any kind of veterinary support. The National Dairy Development Board of India

supply of farm milk of reasonable quality. What's more, they have to ensure that more and more milk is processed in the organised and formal circuit. That, incidentally, will help improve the quality of milk and dairy products in India,' anticipates



As internationalisation spreads, food safety is moving up the agenda in India.

faces a well nigh impossible task. First of all, they have to ensure that India's milk-processing co-operatives have a sufficient

Parzer. He tells that due to the large number of small farmers it is an impossible task to eradicate foot and mouth disease

(FMD) in India. The disease is found all over the country. At present Indian dairy exports are quite low. But should they develop, the presence of FMD will certainly present problems. This has motivated Indian veterinarians to appeal for the creation of a number of guaranteed FMD-free areas, as has been achieved in Zimbabwe and Botswana in Africa. The idea behind this initiative is that importers would accept dairy exports from these FMD-free areas despite the presence of FMD elsewhere in the country. Moreover, he stresses that dairy has a long tradition in India. Because the Hindus don't eat beef, dairy is an important element in the daily diet. This takes the form of milk, buttermilk, yoghurt, cottage cheese or paneer and the ethnic sweets made from dairy. The internationalisation of the Indian economy has had predictable consequences for Indian dairy and other sectors of the food industry. It is becoming increasingly evident that the food sector must adapt, right through from primary production to the end product. 'While in the Netherlands and other western countries food safety is a topic firmly on the agenda, in India it is only just gaining recognition. Water and food in India don't always meet the basic conditions for health,' says Arnold Parzer. Finally, he says that India is certainly no easy country in which to do business. The culture is unique. An agreement is often not an agreement and contracts are often worth little more than the paper they are written on. 'And don't rely on a quick judicial process. Indians are masters when it comes to creating unrest and a lack of clarity. Work at building trust and when doing business make sure that mutual interest plays a big role. The win-win situation is the basis of doing business,' is his advice. <<

Working to improve milk quality

A desire to improve the quality of the Indian dairy livestock, of farm milk and its production, as well as of milk processing is the motivation that drives all the institute's activities. 'There's still a long way to go,' stresses Dr Sushil Kumar, the institute's director. 'Most Indian dairy farmers don't keep their animals according to modern



In the model factory at the national dairy research institute in Karnal students learn the ins and outs of running a dairy factory.

methods. We really need to mobilise them to apply new techniques. Scientific intervention is also needed to considerably improve milk production and quality. That is a gigantic operation because the major-

Karnal is an important centre in the Indian dairy chain. This town north of New Delhi is home to the national dairy research institute (NDRI), which also educates students in its role as a university.

ity of Indian milk is produced by small and marginal cattle farmers. We are talking about more than 70 million farmers spread throughout 600,000 villages.'

Cattle improvement

Improving the cattle stock is one of the NDRI's key concerns. Kumar tells that the Indian cattle stock has to withstand extremes of climate. The north of India is known for its long droughts and exceptionally low temperatures in the winter and very high summer temperatures. The south of the country has a tropical climate. As well as unremitting high temperatures, the region has to contend with the monsoon period, which inevitably brings flooding. 'Our dairy livestock is 52% buffalo. Those buffalo contribute 57% of the milk collection,' Kumar explains. 'The advantage of these animals is that they continue to give milk under extreme climate conditions and in the absence of feed. Moreover Buffalo produce milk with an average fat content of 7% and 3.75% to 4% protein. The best known buffalo breed is Tharparkar, which is found on the border between India and Pakistan. Their average annual production is between 900 and 1.750 litres. Under optimum conditions it can be as high as 2,334 litres.'

Another important buffalo breed is the Sahiwal, which is red and light brown in colour. The breed is kept in the states round New Delhi and to the north. On small farms, the Sahiwal produces an aver-

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age of 1,350 kg milk per year. But in the larger cattle companies, the milk production runs at 2,000 to 2,500 kg. The advantage of this breed is that it can tolerate heat stress. A factor not to be underestimated given that it lives in regions where summer temperatures reach 50 degrees Celsius. At those times these animals find barely any water or feed and yet they continue to produce milk.

New breeds

When the conversation turns to cow breeds, Kumar starts by mentioning that dairy cows, whose milk has a 4% fat content and 3.5% protein, produce considerably less than the buffalo. In recent years the requisite foreign breeds have been introduced in India, mainly the Holstein

Entrance fee

The Office of the Agricultural Counsellor at the Dutch embassy in New Delhi has been trying for days to get formal permission for a visit to the National Dairy Research Institute (NDRI) in Karnal. On the morning that your reporter was already halfway to Karnal from New Delhi, the much-welcome telephone call was received: the Indian government had given its permission. That, however, was not all. Our reception at the institute went well. Problems, developments and progress were dealt with in quick succession. But the sting was in the tail. Because your reporter was from outside India, he was asked to pay the 'entrance fee' of 10 US dollars. Rather taken aback, he paid the money while thinking that such a system would provide quite a tidy income for an institute like NIZO in Ede or Wageningen UR. <<



India's national dairy research institute, located in Karnal, is working to improve the milk production of the various buffalo and cow breeds.

Friesian, Jersey, Red Dane and Brown Swiss. The problem with these cows, however, is that under Indian conditions they don't give enough milk. With a view to rapidly improving milk production, NDRI has succeeded in developing two new breeds, the Karan Swiss and the Karan Fries. The Karan Swiss is a cross between Brown Swiss bulls from Switzerland and the Sahiwal and Red Sindhi Zebu (humped) breeds. The Karan Swiss breed produces an average of 3,350 kg milk per year, while the record production for this breed stands at 7,096 kg. To develop the Karan Fries, the NDRI used the Tharparkar buffalo. They were artificially inseminated by Holstein Friesian bulls. The cows of this new breed are able to produce an average of 3,400 to 3,600 kg milk per year.

Broad activities

On the campus of this research station and adjoining university young scientists are training in animal husbandry and the dairy industry. Alongside them is another group of people keen to learn: dairy farmers. Here they can take courses to help them run their businesses along modern lines. Of particular interest to them is the institute's model factory where 60,000 litres milk are processed daily into various sorts of pasteurised milk, ice cream and cheese. These products are sold to the Mother Dairy co-operative. But that is not the factory's main aim. The most important aspect of this factory is that it is staffed by students from all over India. Under expert guidance they learn how to run a dairy factory. <<

Better breeds drive dairy farming

'Indian buffalo and cow breeds aren't producing enough milk, nor milk of sufficient quality. What we need in India is specialist breeding companies, companies able to apply creative methods to supply specialised dairy farming companies with good milkers. If such companies were set up, they would undoubtedly become the driving force behind Indian dairy farming and the dairy sector. I think that this raises opportunities for the Dutch cattle-breeding sector,' says Upneet Rajorhia, a 39-year-old dairy and dairy farming advisor. This independent consultant, affiliated to the Market Visions Consultants (www.mvcbiz.com) network, has studied animal husbandry and business administration, among other sub-



The Indian consultant Upneet Rajorhia, who also works for Dutch dairy farmers.

jects, at an Indian university. Having worked for a few years as a general advisor, he realised in about 1995 that in the whole of India there wasn't one consultant for dairy and dairy farming.

'Since then have I specialised thoroughly in the dairy chain. I can say I have advised all over India on the design and structure of 25 companies with herds of

between 3,000 and 5,000 animals. I have also been involved in the design of six dairy companies in India. I had some help with the technical aspects from my father. He is a professor in dairy technology and he used to work for the Indian dairy research centre here in Karnal. Today I am the official business partner of Westfalia Separator in Germany. And since April of this year I have been representing Dutch businesses in India. That came about through my contacts with the Office of the Agricultural Counsellor for the Dutch embassy in New Delhi. In that role I work on behalf of the FoodCert certification agency, which is active in India's food sector. Agreements have been made with the Schothorst Institute in Amersfoort, specialists in cattle feed, about quality labels for feed factories and the provision of dietary advice in India. Finally, I am in touch with Rovecom BV in Hoogeveen, whose area is the ICT involved in producing compound feeds. I know that in India we are very behind the EU in terms of dairy farming and dairy, but I am convinced that we can make up that deficit in five to ten years. Provided India introduces the necessary quality assurance systems,' says Rajorhia. <<

Indian dairy aspires to leading role in region

Chairman Animesh Banerjee and Vice-chairman Dr N.R. Bhasin of the Indian Dairy Association (IDA) aren't mixing their words. The organisation was founded in 1948 by Indian dairy scientists in the city of Bangalore, home to more than a million people. As the sector has grown, the number of member dairy businesses has grown. To cater for its new cross section of members, the organisation became the IDA on 23 September 1976 and relocated to New Delhi. Today its members are drawn from research, information and education, dairy co-operatives, privately-owned businesses, multinationals and the public sector.

Cooperation

'First, we are going to spread our wings in our own region,' says the IDA's enthusiastic chairman. 'You are familiar with the East

'As the world's leading milk producer, we the Indian dairy sector wish to be more involved in world events. But first, we aspire to a leading role in the region.'

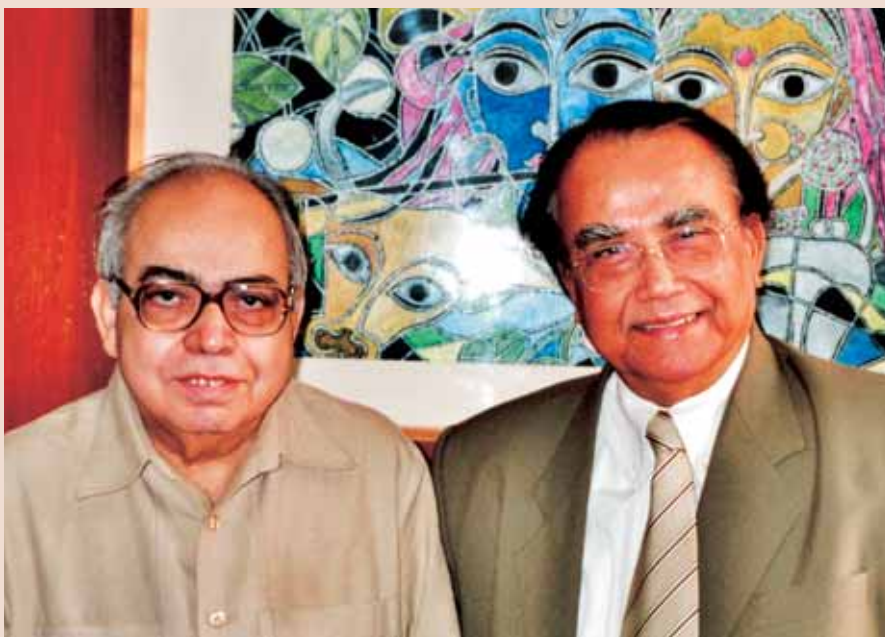
African Dairy Association? That's a group of African countries that joined the IDF, the International Dairy Association, in autumn 2005. They will be visiting India soon and we are going to sign a collaboration agreement with them. We'll also be strengthening our links with Vietnam, only logical since, like us, they produce a lot of buffalo milk. These are ways in which we are strengthening our contacts in our region.' Banerjee also mentions that as a result of the WTO negotiations, the Indian dairy sector has joined the Global Dairy Alliance. The dairy sectors of Australia, New Zealand, Brazil and Argentina are also

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involved. 'It is in the interest of all Indian dairy farmers without land that the US and the EU stop subsidising their dairy farmers. If they do, our people will get higher prices for their milk. Dairy means more to us than just the milk, it gives our poor population the chance to get above the poverty line. That's why we are arguing for the end of all dairy subsidies. If we achieve that, these people will live in greater prosperity, harmony and peace.'

Advantages

'Some 70% of Indian milk is produced by small, marginal cattle farmers,' says vice chairman Bhasin when asked to sketch the Indian dairy sector. 'They tend to be organised into village co-operatives. Despite all efforts to modernise in the past 15 years, the smaller businesses still form the backbone of the Indian dairy sector.' In his opinion, this structure has certain significant advantages. One advantage is social. Organised in this way, dairy farming offers millions of people, united in more than 100,000 small village co-operatives, the opportunity to produce milk. Thanks to the model used, the Anand model, only low investment per animal is required. The economic advantage of this system and its low level of investment is that India is able to compete on cost price with other milk-producing countries. While investment in logistics is high, particularly in cool chains, much of the milk is sold in the villages where it is produced. Dr Bhasin considers this to be extremely favourable given that it keeps down sales costs. Finally, another factor he regards as positive is the fact that milk in his country is produced by two animals, namely buffaloes and cows. The buffalo not only produce milk with higher fat and protein



The leadership of the Indian Dairy Association: on the right chairman Animesh Banerjee and on the left vice chairman Dr N.R. Bhasin, who is responsible for the IDC's activities in the north of India.



Cows standing by the roadside in New Delhi while an Indian woman walks away with a pile of dried cow pats on her head. This is used as fuel.

Stray cows a major problem

Many hundreds of years ago, Indian agriculture had a great problem. In times of poverty, the rural population ate the milk cows. As a result, farms had no animals to do their heavy work. It was decided to protect the cows in a very special way. They were given a place in the Hindu religion through a connection forged with Karna, the noble warrior and god. Cows became holy animals that it was not permitted to kill. And, thus, they remained available as the most important source of pulling power for millions of farmers. Cows are still holy in India. But the environmental factors are very different. The larger farms now have tractors, camels and horses. And that means that many cows are redundant. Today, stray cows are a problem in India, as well as an inconvenience, they are a danger on the roads. They populate the edges and even the central reservations of roads of all sizes, including the

major through roads connecting cities. New Delhi even has a 'cow ambulance' that collects cows involved in traffic accidents and takes them to a cow hospital. Once recovered, these cows are released outside the city. For many Indian dairy farmers, these cows have in fact become an obstacle. When young, they produce milk. But once they are no longer producing, they can't be slaughtered. Very many cattle farmers simply turn the unproductive animals out on the street where they must survive as best they can. And so they end up by the dustbins in the big cities where food is regularly to be found. Remarkably, on most occasions that your reporter broached this issue, a reference to religion was made and the subject of conversation quickly changed. This problem is completely avoided. I did gather, however, that there's a widespread belief that a number of stray cows are smuggled into neighbouring Bangladesh, where they are slaughtered and eaten. <<

content, but they provide greater sales opportunities for processed products. He is referring to Europe where the buffalo cheese Mozzarella is increasingly being regarded as a speciality product. And worldwide Mozzarella is becoming the preferred industrial cheese on pizzas and in snacks. There are opportunities ahead for the Indian dairy industry, of that he is convinced.

Drawbacks

At the same time, he agrees that the dairy chain in his country needs to make headway if it is to participate in the international arena. Only once the dairy chain has been modernised, will the Indian sector be able to play a significant role in the world. He believes a great deal of investment is

required in scale increases, quality improvements and food safety in the sector. 'If we look at our region, then Australia and New Zealand are our greatest competitors. They offer dairy products made from cow's milk. In this respect it's a disadvantage that more than half of our milk in India comes from buffalo. It has a higher fat content than cow's milk and slowly but surely we are seeing consumers choose less fat in their diets,' says the IDA executive. He says that roughly 740 milk-processing companies are active in the Indian dairy industry. Some 500 of them can be described as quite efficient. But most of them produce a fairly limited range of dairy products based on drinking milk, butter and paneer or cottage cheese. 'It is time for new marketing strategies. The Indian dairy

sector must turn its attention to products with added value. India is, for example, the cradle of ethnic sweets made from sweetened condensed milk. You could sell these sweets all over the world. After all, Indians now live all over the world. I recently visited the United States, and what did I see? Exactly, a wide range of ethnic Indian sweets for sale in American supermarkets. Only, they were produced in Canada. Another product of the Indian dairy industry is ghee, a liquid butter product. I will spare you the details, but thanks to a new production procedure, the product has been stripped of all cholesterol. Look, we should do something with that. In fairness, I think we need more time to improve our infrastructure and approach,' says Dr Bhasin. <<

India's awareness of quality food is growing

It was pleasantly cool in the exhibition halls and the conference centre of the southern India city of Chennai (Madras). Outside the temperature was just under 40 degrees Celsius. The persistent monsoon rains had flooded the streets and driven the Tsunami victims from the previous year out of their temporary homes.

Social structure

Inside the conference hall, packaging expert Mr Dasgupta of Hindustan Lever Ltd (Unilever) was contending that the social structure of the Indian population is clearly changing. Whereas in 1994 some 48% of the Indian population considered themselves likely to become better off in time, five years ago that group was no less than 78%. And the percentage of people whose position is only deteriorating fell in this period from 48% to 33%. 'This improvement in expectations has consequences for the demand exhibited by the Indian consumer,' explains Dasgupta. 'Consumers want more packaged products, as a way to guarantee food safety. Quality, longer shelf life, smaller portions and user friendliness are all aspects that go hand in hand with that. Moreover, the Indian consumer wants to see the product. Glass and plastic in all their variety meet this need, but due to the fragility of glass and the less than optimum logistics chains, plastic packaging will out-strip glass in the short term.'

PUM

Crowing round the Dutch embassy stand were various exhibitors whose roots are in the Netherlands. The first to start a conversation was Bimal Nanda of Three Rings Exports & Imports company based in Nagar. While pressing his business card into your reporter's hand, and introducing

Consumer awareness of food quality is growing in India. This conclusion can be drawn following a tour of FoodPro, the trade fair for food and food-processing technology.

himself as the official agent of Zwanenberg Foods in the Netherlands, he said he'd very much like to import cheese from the Netherlands into the south of India. Exhibitor Krishnaswamy was praising the PUM Foundation set up by the



At the stand of the CIMA dairy company at FoodPro, a pan is bubbling away with a typical Indian snack called 'galub'. It is sweetened condensed milk from which Indian ethnic sweets are made.

Tiny Brouwers

Confederation of Netherlands Industry and Employers (VNO-NCW). Retired Dutch experts are volunteering to share their expertise with small and medium-sized companies free of charge. As PUM's Indian representative, Krishnaswamy gets a lot of questions directed at him. Most, he says, relate to the textile sector and food industry, as well as to environmental protection. Based in Chennai, Krishnaswamy receives fewer questions from the Indian dairy industry. He thinks this is due to the PUM criteria. The PUM experts work with Indian companies with fewer than 700 employees and a turnover less than EUR 40 million. Most milk-processing companies are bigger than this. Marcel Bogerd works for Systemate Numafa in Numansdorp near Rotterdam. One of his company's roles is supplier to the dairy industry. The company has supplied Nestlé in Poland and Tunisia with equipment for the aseptic pouring of desserts into their containers. Negotiations are currently under way with the Indian Mother Dairy co-operative for the purchase of a washing machine for crates. The co-operative transports its pouches of drinking milk in plastic crates. But, says Bogerd, 'India is a difficult market for us. We focus our efforts on efficiency and work reduction. What's more, our equipment is quite expensive as a consequence of the CEE guidelines in the EU. Under these, equipment builders for the food industry have to take account of things like ISO, HACCP and other quality assurance systems. In India there are enough people willing to work for low wages, and quality is a concept that's just getting off the ground so assurance is less of a priority than in the EU.' Nevertheless, these systems are finding a foothold in India, according to P. Rajkumar,



The Office of the Agricultural Counsellor in New Delhi provided a good information stand at FoodPro, in cooperation with the Netherlands Business Support Office in Chennai.

vice president of FoodCert India, based in Hyderabad, an Indian city of over one million inhabitants. This certification institution, which was founded in the Netherlands, launched in India in 2001 and now has 12 employees in Hyderabad. It is also the only institution working closely with the Indian government. 'We started introducing HACCP systems in 2002.

A year later we started assessing fruit and vegetable companies against the requirements of EurepGAP. Today we are also active in the Indian dairy sector. Finally, FoodCert India has made agreements in Sri Lanka to expand its activities into that country,' says Rajkumar. Finally, a Belgian company and a Dutch company are represented at the stand held

by the Dynatech Marketing Company, Mumbai (formerly Bombay). Regional manager Hans Sanders of Cobelplast in the Belgian city of Lokeren relates that his company is selling a lot of polystyrene packaging for yoghurt production as well as multilayered foil for coffee creamers. Sander Schwartz is an area manager with Goudsche Machinefabriek BV, in short GMF-Gouda, whose head office is today in Waddinxveen. The company, founded in 1909, was the first in the Netherlands to build a milk-powder machine for the dairy industry and has since developed many machines that it has patented. 'India could be an interesting market for us. We could, for example, sell drum dryers, for use in the production of milk powder and to companies making baby food', suggests Schwartz cautiously. <<

Opportunities for the Netherlands in India

'There are big sales opportunities in India for Dutch companies. Despite that, relatively few Dutch companies are active here. Maybe they are too conservative or they think that their good products will sell without help. Either way, it's a pity. You have to make an effort to get the customer to buy,' says Vijay Kumar, head of the Netherlands Business Support Office in Chennai (formerly Madras) in mid November during the FoodPro trade fair.

Together, the support office and the Office of the Agricultural Counsellor representing the Netherlands Ministry of Agriculture, Nature & Food Quality in India and Sri Lanka in New Delhi were manning a well-stocked information stand surrounded by various Dutch exhibitors. Kumar understands that the main arena for Dutch companies is the EU, where they sell some 80% of their exports. 'But that other 20% is going to important growth markets like China, Brazil and India. Experts estimate that in 2005 India grew to be the world's third-largest economy. That's why in the coming years the Dutch business world must make sure it's ready for this market,' he believes. He gets a lot of requests for imported cheese

and other dairy products from the Netherlands. 'Your dairy has a very good name in India. But why do your dairy companies export hardly any products to India?

You are leaving the market to the Australians, New Zealanders and Italians. You must get started here, otherwise the Dutch dairy sector will miss the boat in India,' he says summing up his urgent appeal. Netherlands Business Support Office in Chennai operates under the responsibility of the Agency for International Business and Cooperation (EVD) in The Hague. 'Our support office was the first EVD agency in the world to be given a complete facelift in 1996. It is staffed by local people and that ensures a great deal more continuity than when an officer is sent on a three-year placement from the Netherlands. The support office collects information in the south of India of interest to Dutch companies, participates in exhibitions like FoodPro, works with interested Dutch companies to organise workshops for their major target groups and provides information about our region of India to the Chambers of Commerce and interested branch organisations in the Netherlands,' says Vijay Kumar. <<

