
# December 2009

## Developments

### Goat milk production in the Netherlands

The production of goat milk in the Netherlands is growing continuously. It is relatively young sector that started only in the late 70's. From the 90's the sector has demonstrated a steady growth.

The table below shows the developmemt since 2000.

| | ***2000*** | ***2005*** | ***2007*** | ***2008*** |
|---|---|---|---|---|
| Farms with > 100 goats | 275 | 326 | 321 | 325 |
| Average production per goat (kg milk) | 765 | 788 | 859 | 851 |
| Total number of goats on farms (with more than 100 goats) | 99.539 | 168.872 | 185.736 | 205.445 |
| Total milk production (x 1000kgs) | 75.000 | 135.600 | 162.000 | 177.000 |
| Average milk price (€ per 100 kgs, excl. VAT, ex farm) | 39,14 | 41,47 | 43,72 | 47,89 |

*Source: Statistic anually year report PZ 2008*

It is expected that the sector will continue to develop further, where we will see a further increase of the number of animals per farm and the annual production per goat. The number of farms will more or less remain stable around 300 farms.

Within Europe the Netherlands are an important producer of goat milk.

The table below shows the top 5 producing countries of goat milk and its development since 2008.

| | ***2000*** | ***2005*** | ***2007*** | ***2008*** |
|---|---|---|---|---|
| France | 482.400 | 580.220 | 595.000 | 595.000 |
| Spain | 438.541 | 486.300 | 505.000 | 505.000 |
| Greece | 478.700 | 511.373 | 500.000 | 500.000 |
| Romania | | 169.000 | 220.000 | 220.000 |
| Netherlands | 75.000 | 135.600 | 162.000 | 177.000 |

*Source: Statistic Anually year report PZ 2008*

It is clear from the above table that in The Netherlands the sector has demonstrated a spectaculat growth. This is quite remarkable. Moreover because the consumption of goats milk in the Netherlands is quite small. Most countries in the

above table produce for their home market and in some countries (like Greece and Romania) only a small part of the milk is processed in a factory.

In the Netherlands most of the milk is processed into gouda type goat cheese. This cheese is mainly for export to other European countries. Also quite a sizeable volume is sold as milk to other european countries.

The Dutch goat milk sector can be characterized as highly efficient. In average farms a large-scale and a typical family-owned farm may have up to 1000 goats without outside labour. As the Netherlands are a small country all milk that is collected from the farm will be processed within a day.

This ensures a fresh, high-quality product with an excellent mild taste and flavour.

All Dutch goat farms comply with the Kwaligeit regulations. Kwaligeit is the chain quality management system of the Dutch dairy sector.

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## Q-fever in the Netherlands

Lately in the Netherlands q-fever has been in the news. Several measures have been taken to prevent a further outbreak of q-fever in the Netherlands. We would like to inform you about Q-fever in this E-letter.

***What is Q-fever?***
Q-fever is a disease caused by infection with Coxiella burnetii, a bacterium that affects humans and other animals. This organism is uncommon but may be found in cattle, sheep, goats and other domestic mammals, including cats and dogs.

The disease can be transmitted to humans and infect them. The main source of infection results from inhalation of contaminated particles in the air. Infection can also occur through contact with the raw milk, urine, feces, vaginal mucus, or semen of infected animals.

***Is Q-fever a new disease?***
No, it was first described by Edward Holbrook Derrick in abattoir workers in Australia. The “Q” stands for “query” and was applied at a time when the causative agent was unknown; it was chosen over suggestions of “abattoir fever” and “Queensland rickettsial fever”, to avoid directing negative connotations at either the cattle industry or the state of Queensland.

The pathogen of Q-fever was discovered in 1937, when Frank Macfarlane Burnet and Mavis Freeman isolated the bacterium from one of Derrick’s patients. It was originally identified as a species of Rickettsia. H.R. Cox and Davis isolated it from ticks in Montana, USA in 1938. It is a zoonotic disease whose most common animal reservoirs are cattle, sheep and goats.

In The Netherlands 11 to 41 cases of human Q-fever cases were reported every year. However, since 2007 more people have been infected, up to 2100 persons in 2009.

***How does Q-fever spread?***
Q-fever is found in cows, sheep en goats but also in dogs, cats and birds. In The Netherlands the rise in the occurrence of the disease is caused by infected sheep and goats. Mainly during lamb season the bacteria are secreted into the environment.

***How can people get contaminated with Q-fever?***
The main cause of infection is the inhalation of contaminated dust particles from the air of stables, fields, animal skins and direct contact with contaminated animals.

Animals having Q-fever often abort the fetus and at this time massive amounts of bacteria are excreted. These bacteria remain in the stables and are a major cause for spreading the disease, through dust.

***Are goat milk products safe?***
Yes, all of our goat milk products can be consumed safely. Pasteurization kills the bacteria. All CBM products are made from pasteurized milk and thus safe for consumption.

***What is the current situation in the Dutch goat sector?***
In The Netherlands 60 out of 325 goat farms are infected with Q-fever. The Ministry of Agriculture has announced that, starting from December 21st 2009, all pregnant goats on these farms will be culled. The non-pregnant goats will be vaccinated but are not allowed to be bred. The reason for this measure is to avoid a further outbreak of Q-fever among humans during the 2010 lamb season.

***What does this mean to our customers?***
In principle nothing has changed. As before all our products are made from pasteurized milk and are safe for consumption. This is a standard procedure that is not related to Q-fever.

The culling of such a large part of the Dutch goats herd (approximately 20%) will have an effect on the availability of milk. We expect that it may take several years before the goat milk production in The Netherlands will be back to the 2009 level.

However, we believe that CBM will remain in a position to maintain an uninterrupted supply of goat milk products to our customers.

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**Scientific studies on goat milk products**

**Goat milk prevents iron deficiency**

*A study of the nutritional benefits of goat milk, compared to cow milk, on preventing iron deficiency could prove to be a huge benefit to human health.*

Research studies carried out at the University of Granada have showed that goat milk not only helps to prevent against ferropenic anaemia (iron deficiency) but also to combats bone demineralization (softening of the bones).

In 2002 the research group started with a search for diets that improved the digestive and metabolic use of iron and copper in malabsorption syndrome. This led them to study goat milk for particular nutritional characteristics and compare it with cow milk, which is usually consumed. The study showed the beneficial effect of goat milk, compared to cow milk, on the metabolism of iron and copper in control rats, especially those with a malabsorption syndrome.

They studied these phenomena further and came in 2006 and 2007 with studies showing that rodents consuming goat milk had better levels of parathyroid hormone (PTH), a hormone that regulates calcium balance. This is ascribed to the higher bioavailability of iron, calcium, phosphorus and magnesium in goat milk.

Rats with induced iron-deficiency anaemia were fed diets based on goat milk or cow milk. After feeding the rats for 2 weeks with the different diets, the anaemia had decreased, especially with goat milk. Concluded was that dietary goat milk improves Fe bioavailability in both control and anaemic rats, increasing Fe deposits in target organs.

According to this research, all these conclusions reveal that regular consumption of goat milk aides the mineral metabolism. Of course, all these studies were performed in rodents and human studies are necessary to verify the results in humans.

*References:*


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- Dietary goat milk improves iron bioavailability in rats with induced ferropenic anaemia in comparison with cow milk. M.J.M. Alférez, I. López-Aliaga, T. Nestares, J. Diaz-Castro, M. Barrionuevo, P.B. Ros and M.S. Campos. International Dairy Journal 16: 813-821. 2006
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**Product information**

**Goat Whey Protein Concentrate**

In 2009 CBM B.V. has started a project regarding the the production of goat whey protein concentrate powders. These powders are made by ultrafiltration and spraydrying of whey, the protein-rich by-product of goat cheese. During the ultrafiltration the protein fraction in the whey is concentrated, while the lactose concentration is decreased. Depending on the concentration of protein, after drying a WPC35 (35% protein), a WPC50 (50% protein) or a WPC60 (60% protein) can be produced.

The products consist of 100% pure goat whey, which is unique in the world. Because of its unique amino acid composition it is particularly useful as the protein fraction in baby food. But it is also very useful in dietary food, as a protein supplement for sporters, in dairy products as yoghurt, candy, etc.

The protein consists mainly of the following fractions: b-lactoglobulin, a-lactalbumin, immunoglobulins (mainly IgG), serum albumin en lactoferrin. These components are also present in cow whey powder, however in different quantities (see table 1).

*Percentages of the different protein fractions in whey from goat and cow milk*

| | ***Goat whey*** | ***Cow whey*** |
|---|---|---|
| β-lactoglobulin | 59 | 65 |
| α-lactalbumin | 27 | 16 |
| Immunoglobulins | 10 | 13 |
| serum albumin | 4 | 7 |

Especially the higher amount of a-lactalbumin in the goat whey is of great importance. For example the amount of tryptophane, one of the essential amino acids for the body, is high in a-lactalbumine. a-lactalbumine is being related to improvements in coping with stress and in sleeping patterns.

Goat whey also contains several micro-components, such us nucleotides and phospholipids. These micro-components are thought to have functions in the immune system, iron absorption, improvements in the intestinal flora, etc.

Altogether we believe that our WPC is a special product with lots of clear benefits for the body and apparent product applications. We will perform further research into the specific composition of goat WPC and applications of goat whey powders to further increase the knowledge on this product. Please, do not hesitate to contact us if you have any further questions.