

**Omgaan met tegenstellingen  
rondom rauwe melk?  
Zegen of gevaar voor de volksgezondheid?**

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# Raw milk conference in 2011



# Article on raw milk discussion



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## Milk Consumption, Raw and General, in the Discussion on Health or Hazard

Ton Baars

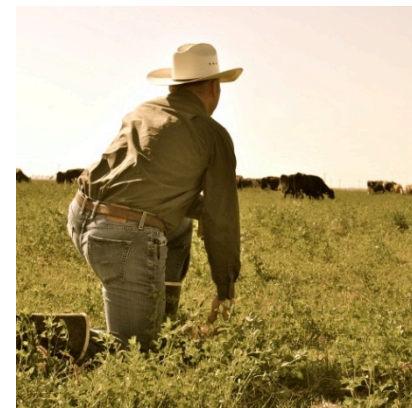
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In the last decade, consumption of raw milk, milk in general and milk fats suffers from an adverse nutritional and health image and therefore mixed messages are present among consumers. Milk products contain a range of bio-active contents related to health regulation. Heating destroys not only unwanted and beneficial bacteria in milk, but also changes the activity of enzymes and peptides. In this review, attention is paid to the benefits of milk consumption for asthma, allergies and atopy. Raw milk is a single protective factor for asthma and allergies in children. Also milk fat protects against asthma and within the milk fatty acid composition especially the markers rumenic acid and trans-vaccenic acid, are inversely associated with asthma and atopy. From the position of governmental agencies and medical societies, it is not advised to consume any raw milk. It is









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milk & health  
— a little dirt does not hurt

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Melk Gezondheid FAQ

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## Website Milk&Health: Welkom

Deze website heeft tot doel te informeren over melk in betrekking tot uw gezondheid. Verse onbehandelde melk (rauw), vetzuren, peptiden hebben invloed op astma, allergieën, maar ook uw gewicht. Hoe wordt de darmflora beïnvloed? Hoe functioneert de immuniteit? Voor wie ...



# (Loss et al., 2011) GABRIEL study

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The long-term solution to the asthma epidemic is thought to be prevention and not treatment of established disease,<sup>30</sup> and nutritional interventions might represent an interesting avenue. However, on the basis of current knowledge, raw milk consumption cannot be recommended because it might contain pathogens. Once the mechanisms underlying the protective farm milk effect are better understood, ways of processing and preserving a safe and preventive milk can be developed.

We thank Dr Wulf Thierfelder and Michael Thamm from the Robert-Koch-Institute, Berlin, Germany, for their cooperation and the measurement of total and specific IgE levels that was used in the definition of atopic subjects. Furthermore we thank the participating children, their families, and the fieldworkers of the GABRIEL Advanced studies.

**Key messages**

- Questionnaire-reported consumption of unboiled but not boiled farm milk was inversely associated with asthma, hay fever, and atopy.
- Higher levels of the whey proteins BSA,  $\alpha$ -lactalbumin, and  $\beta$ -lactoglobulin in milk samples were associated with a reduced risk of asthma but not atopy.
- Neither total viable bacterial counts nor the total fat content of the milk were related to asthma or atopy.

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## McGuigge, 2006 in Speake, 2015: Debating Milk: Milk as Nutritious and Safe

4). Murray McGuigge (2006), a Canadian public health officer, reflected the official view of the CDC and CIDPC in dramatic fashion:

Cow's milk is not safe when it comes straight from the udder. These diseases [he mentions tuberculosis, brucellosis, listeria, salmonellosis, E. coli (O157:H7), campylobacter gastroenteritis, and staph and strep infections] are all passed through the cow and into its

milk. No amount of clean animal husbandry can prevent this. . . . To bring in legislation to allow the sale and distribution of raw milk would be tantamount to manslaughter and taking Ontario back to the Dark Ages. (para. 8, 15)



# Atopic disorders and immune dis-regulation increase rapidly over the last decades



Hay fever  
Asthma



Atopic dermatitis  
Runny nose



# Asthma may affect as many as 334 million people.\*

\*For explanation see Chapter 2 "How many people have asthma?"

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# Milk? Health or hazard?

- › Disbelief, lack of knowledge, power, interests on raw milk
- › ...Answer: teaching and good research
- › What are health aspects of raw milk?
- › ...Answer: prevention of Asthma, allergies and hay fever, but probably also bowel problems >> immunity disfunction
- › Scientific evidence?
- › ...Answer: epidemiological and meta-analysis, study in children and in mice models
- › Which raw milk?
- › ...Answer: safe raw milk from grass based animals without any use of antibiotics
- › How to reduce the zoonotic risks?
- › ...Answer: Milk is not milk! There is an long existing legal practice in different countries. Look for raw fermented products

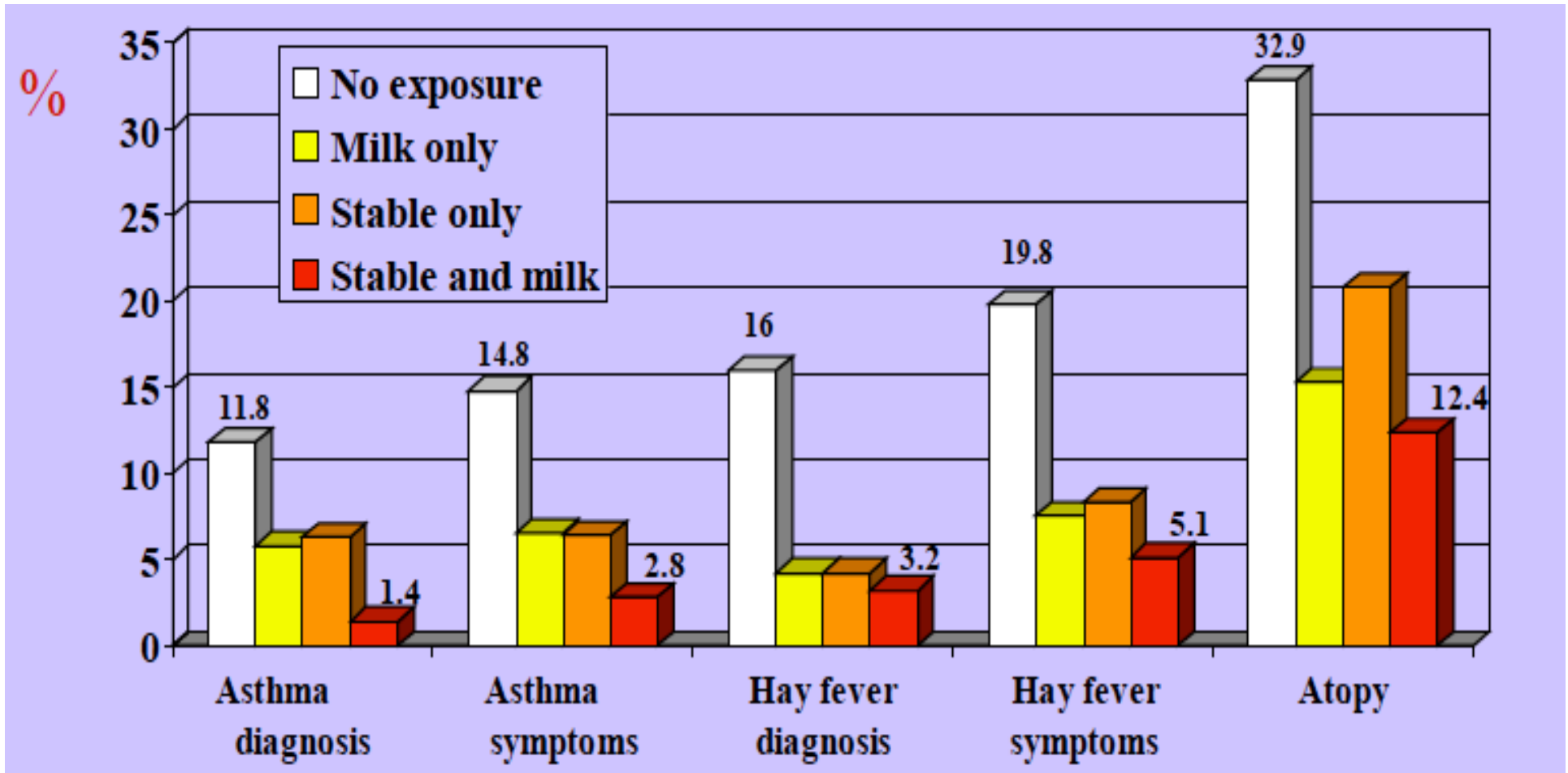
# (1) Life style studies with attention: raw milk protects

- › Built correlations between outcomes (disease, health) and factors in the world people live in
  - › Farm children, their mothers and raw milk
  - › The Lötschen valley farmers (*WA.Price: Nutrition and physical degeneration*)
- › Outcomes:
  - › **Raw milk is an important single protective agent** against asthma, allergies, hay fever, but also inflammations of middle ear (Braun-Fahländer and Mutius, 2010)
  - › Effects start **before birth** (DOHAD; Riedler et al, 2001; Price, 1950)
  - › **Milk fats** are important, especially those with a high content of n-3 and CLAs (Wijga et al, 2006; Thijs et al, 2011; Brick et al, 2016)



# Child behaviour: +9 Month till 2 years after birth

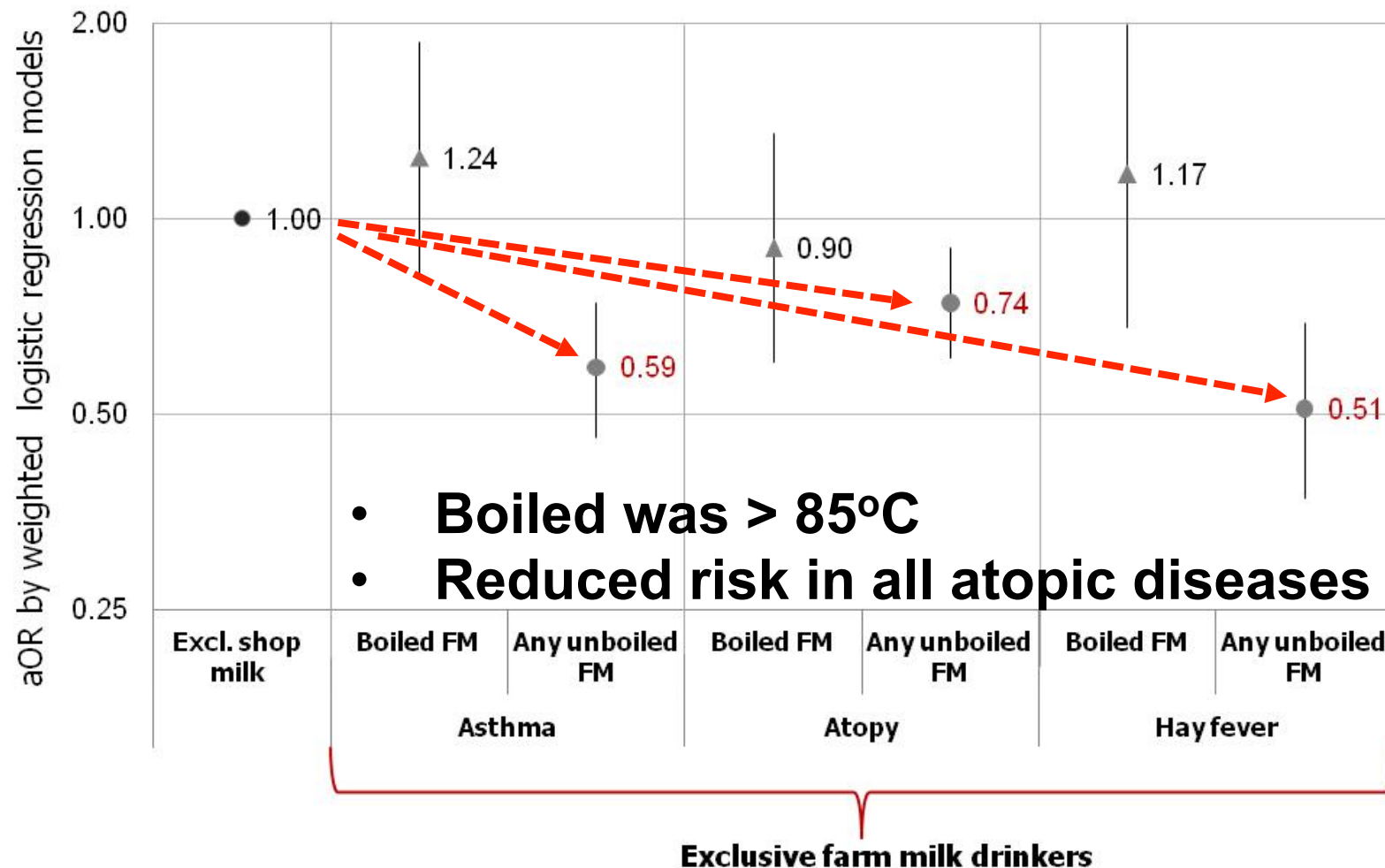
*Riedler et al. (2001)*



## UK-children (farm, farm labourers, villagers) are protected by raw milk intake *(Perkin et al., 2006)*

- › Cross-sectional, 4767 (1<sup>st</sup> stage: questionnaire) and 879 (2<sup>nd</sup>: prick, blood tests) children
- › **Farm** children: less current asthma, allergic rhinitis, but not current eczema symptoms.
- › **Raw milk**: less current asthma and less current eczema symptoms and greater reduction of atopy.  
**Dose-effect response!**
- › The raw milk effect was seen **in all children independent their farming status**
- › Raw milk > lower IgE and higher IFN-gamma

# Unboiled farm milk and asthma, atopy and hay fever among 800 farm children (*Loss et al., 2011*)





# Hypothesis for protection raw milk:

*A little dirt does not hurt* (Strachan, 1986)

## Factors involved:

- › Mother
- › Farm
  - › Animal contact
  - › Barn
  - › Helping haying
- › Unprocessed farm milk
- › Constant intake from pro- and prebiotics
- › Th1 <> Th2  
(Neerven et al. 2013)



## **(2) Studies in children and mice**

- › **Multiple allergic children**
- › **Age about 1½ Y (*Roos et al., 2011*)**
- › **‘Allergic’ mice can be used as a test model at Utrecht University (Group: Garssens) (*Abbring et al., 2015*)**

# Children and multiple allergies

*(Roos et al, 2011; Abbring et al, in prep)*

- › Placebo-controlled trial
- › **Raw Vorzugs-milk** from Demeter farm vs. EDEKA-shop milk
- › No differences in prick- and pflaster-test, however, in the **oral provocation**:
  - › Children could consume up till 50ml raw milk
  - › Were sent home and parents should look for raw milk and raw milk products from local Demeter farms
  - › After several weeks multiple allergies were (almost, mostly) gone



### (3) Milk(fat) consumption and Asthma: PIAMA-Study (Prevention and Incidence of Asthma and Mite Allergy)

(Wijga et al. 2003)

Intake	Asthma bronchiale Incidence (%)		
	daily	seldom	
Full fat milk	4,6**	7,5	* p < 0,05
Half fat milk	6,8	6,2	
Milk products	6,0*	8,2	** p < 0,01
Butter	3,0*	6,8	
Margarine	6,4	6,8	



Daily intake of **full fat** products reduces risk of Asthma and wheeze in pre-school children

## **(4) Fermented milk products**

- › **Joghurt, Kefir, Cheese**
- › **= Pre- and probiotic food**
  - › **Safer than raw milk**
  - › **Even better results in relation to all cause death, CVD / Artherosclerosis, Osteoporosis**

## **Dutch experience with raw milk kefir**

**Kefir is an old probiotic  
food used also in  
hospitals**

**Kefir is a probiotic  
'soup' of micro-  
organisms**

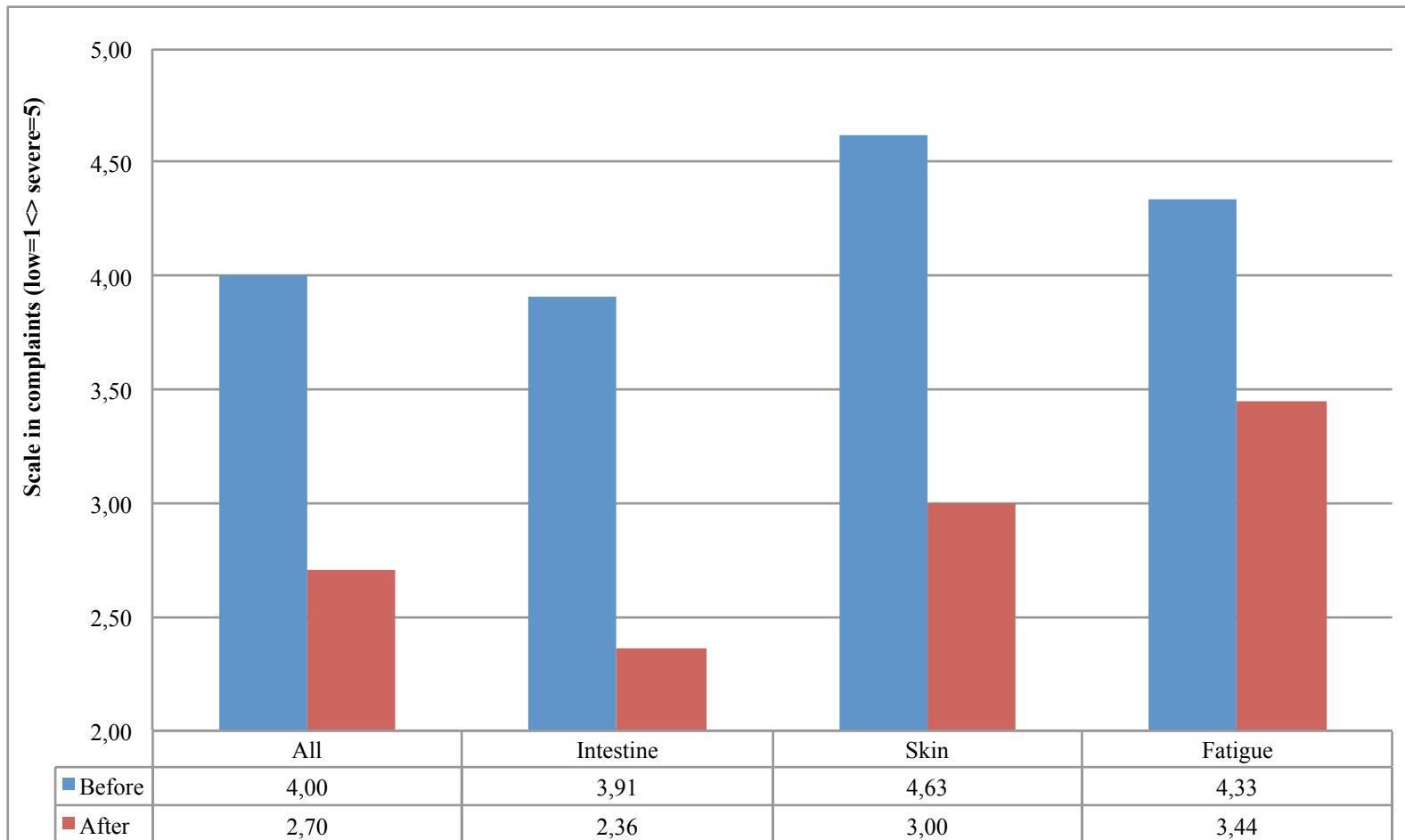
- › **We evaluated the  
effect of kefir  
consumption**





# Raw-milk kefir affects health of adult people (*Van Dun et al., 2014*)

- › Self-reported sign. changes of 47 consumers (5=very poor/bad <> 1=very good/healthy)



## Praxis of the *safest as possible* milk production



## Vorzugsmilch (D) since about 80y.

- › **Vorzug =**
  - › **Priority**
  - › **Benefit**
  - › **Preference**
  - › **Merit**
- **Bevorzugen =**
  - **Favour**
  - **Prefer**
  - **Privilege**
- › **Was: *raw milk* for children, health milk, cure milk**
- › **Dutch MD before WW-II warned parents for the consumption of *pasteurized milk* due to health of their children**
- › **Anno 2010: ‘raw milk criminals’, not allowed for young children, pregnant women, elderly people (because of their weakened immune system)**



## Analytischer Befund

Untersuchung	Parameter	Ergebnis	Einheit	Richtwert (Warnwert)
Nachweis in 0,1 ml	Streptococcus agalactiae	negativ	in 0,1 ml	negativ in 0,1 ml
Keimzählung	Enterobacteriaceae	n.n. (<1)	KBE/ml	10 (100) KBE/ml
Keimzählung	Staphylococcus aureus	n.n. (<1)	KBE/ml	10 (100) KBE/ml
Phosphataseaktivität	Phosphatase alkalische	positiv	-	positiv
Zellzahl in Milch	Zellzahl	19	x 1000 Zellen/ml	200 (300) x1000/ml
Temperatur-Messung	Temperatur	0,6	Grad	< 8 °C
Säuregrad	pH-Wert	6,81	-	
Anreicherung 25 ml	Salmonella spp.	negativ	in 25 ml	negativ in 25 ml
Anreicherung 1 ml	Listeria spp.	negativ	in 1 ml	negativ in 1 ml
Anreicherung 25 ml	Campylobacter spp., thermophil	negativ	in 25 ml	negativ in 25 ml
Anreicherung 25 ml	MRSA	negativ	in 25 ml	negativ in 25 ml
Anreicherung 10 ml	Yersinia enterocolitica	negativ	in 10 ml	negativ in 10 ml
Anr. 25 ml / PCR	Escherichia coli Verotoxinbildende	negativ	in 25 ml	negativ in 25 ml
Keimzählung	Aerobe Keime gesamt	1500	KBE/ml	20000 (50000) KBE/ml

Legende: n.n. = nicht nachweisbar (<Nachweisgrenze); KBE = Kolonie-bildende Einheiten

Udder health

Hygiene

Udder health

Fraude

Udder health

Process

Process

Zoonosis

Zoonosis

Zoonosis

Zoonosis

Zoonosis

Zoonosis

Hygiene

## BEURTEILUNG

Nach dem Ergebnis der oben aufgeführten Untersuchungen hat die Vorzugsmilch den Anforderungen entsprochen.

# Comparison Raw milk and VZM

(Coenen, PhD, 1999)

		Raw	VZM
• * All Listeria samples came from one single farm	N Farms sampled	115	35
	N milk samples	149	74
• So: Vorzugs milk strongly reduces the zoonotic risks	Listeria	10,1	*16,2
	Bacillus cereus	8,1	0,0
	VTEC	0,7	0,0
	Salmonella	0,0	0,0
	Campylobacter	0,0	0,0
	Total germs	49.000	8.700
	SSC	190.000	160.000
	E.coli	1,1	0,08
	Coliform	110	10

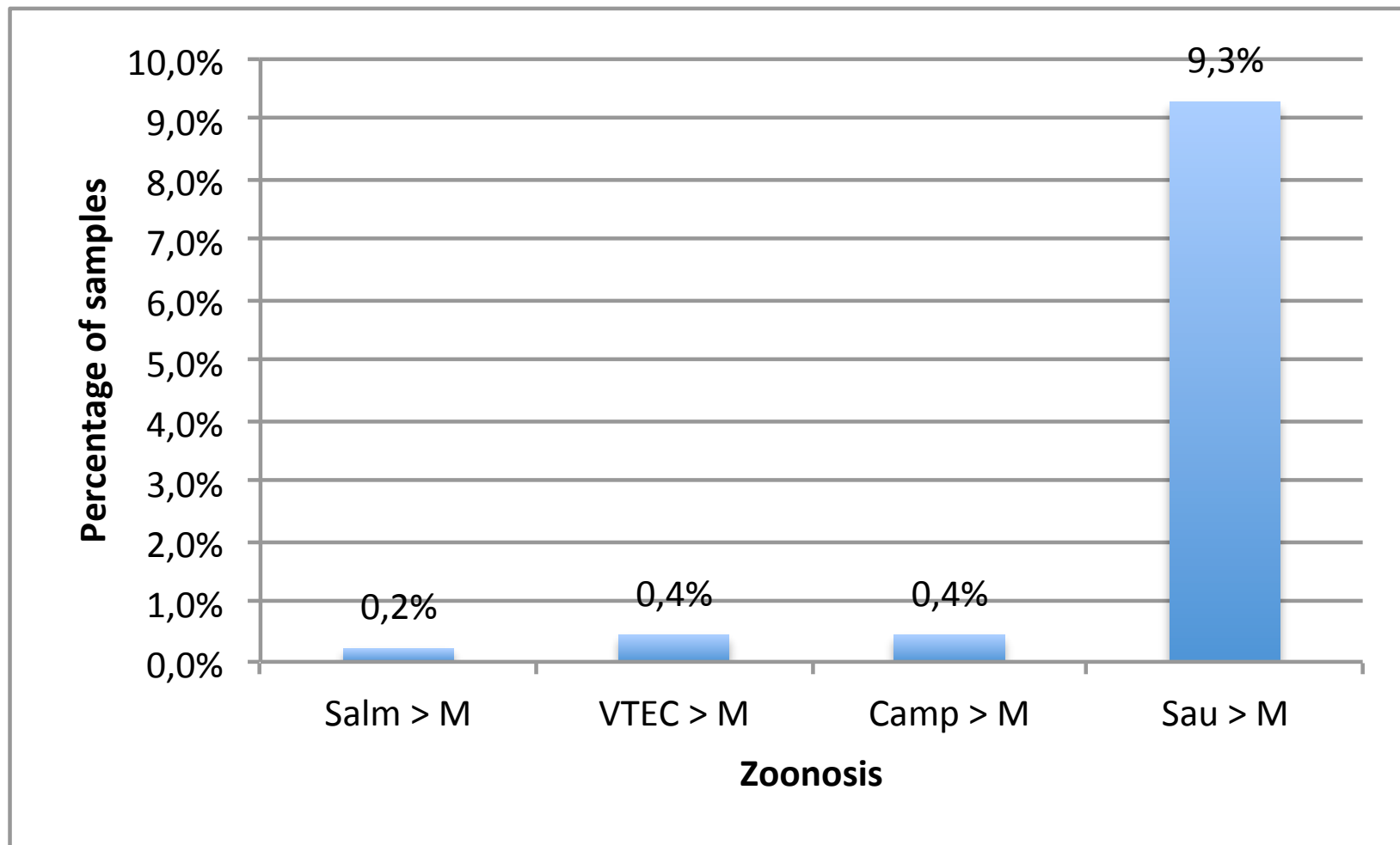
# Study on Vorzugsmilk

*(Baars and Berghe, in prep)*

- › Based on monthly control through veterinarian
- › Data from farms between 2010 and 2014
  - › 14 farms
  - › 452 samples of delivered milk (2010-2014)
- › 1172 samples (2001-2014)



## Zoonotic risks: percentage (%) > M (2010-2014)



## QMRA (Berge, 2015)

- › **Quantitative microbial risk assessments (QMRA)** are complicated statistical calculations that take many factors into account, from **farm to table**, in estimating the risk of a person getting sick from consuming a given food
- › Using QMRA calculations, risks of foodborne illness can be rated or quantified, hospitalization and death as low, moderate, or high for a given food
- › See: Ijaz, 2013.

## Common Standards

As a fundamental resource for both the producer and consumer, RAWMI has carefully considered and published the following Common Standards. These Common Standards took more than a year to be considered, commented on, and edited by an international team of PhDs, veterinarians, epidemiologists, scientists, food safety consultants, researchers, raw milk producers, and food safety experts. The Common Standards was adopted by the CDFA Standards Committee and will be utilized as the standards basis for self-certification of raw milk dairies.

These standards are not a guarantee of perfectly safe food. However, when followed diligently, these guidelines will dramatically reduce the risk of illness from consumption of raw milk and improve the safety of raw milk. The Common Standards serve as the basis for RAWMI farmer listing, and are a portal to a world of continued learning.

The production of safe raw milk is a long-term mission, never fully completed or fully perfected. There will always be something to learn and much to teach. As new information

Champoeg Creamery  
Organic Pastures Dairy Company  
Cast Iron Farm  
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The Family Cow  
Our Ground Up  
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Search

**DONATE**

### Join Our Mailing List

Email Address\*

First Name\*

Last Name\*

I consider myself primarily a raw milk\*

Consumer / Possible Consumer

Postal Code\*

# RAWMI preaches!

- › Risk analysis and management plan
- › Internal and external biosecurity
- › Knowledge
- › Measurement
- › Documentation
- › Peer-support
- › Transparency
- › Accountability





# Don't make criminals from raw milk producers



## **(6) Take home messages: milk & health**

- › **We run into high incidences of NCDs: a failing immune reaction connected with the eradication of infectious diseases, use of antibiotics, way of birth, processed foods, hygiene overkill, etc**
- › **Raw milk and raw milk products play a key role in the development of a healthy, normal immune answer**
- › **There is a long existing praxis of safe raw milk production in ao. Germany, US and Italy; safe, raw milk brings you into a bright future not in the Dark Ages**
- › **Start discriminating milk: fresh, unprocessed milk meant for direct consumption is not pre-pasteurized milk meant to be heat treated to become safe**

## What are challenges for NL?

- › **Copy certification strategy VZM and RAWMI, be careful with limits for Enterobacteriaceae, Staph.aureus and ‘best before date’**
- › **Training courses vets and certifiers**
- › **Co-operate with farmers, who want this**
- › **Built-up a Dutch practice of experience**
- › **Visit Germany and Italy**
- › **Start a project**



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