



**NATIONAL MASTITIS
COUNCIL REGIONAL
MEETING**

Powered by



&

**GHENT - BELGIUM
AUGUST 4-6 2014**

M-team UGent



National Mastitis Council

421 S. Nine Mound Rd.

Verona, WI 53593, USA

Phone: ++1 (608) 848 4615

Email: nmc@nmconline.org

Website : www.nmconline.org

Twitter : www.twitter.com/QualityMilk

Facebook : www.facebook.com/pages/M-team/152912378118498

NMC is a not-for-profit professional organization devoted to reducing mastitis and enhancing milk quality. NMC promotes research and provides information to the dairy industry on udder health, milking management, milk quality and milk safety. Founded in 1961, NMC now has close to 1,500 members in more than 40 countries throughout the world.



M-team^{UGent}

Faculty of Veterinary Medicine, Ghent University

Salisburylaan 133, 9820 Merelbeke, Belgium

Phone: ++32 (0) 9 264 75 30 or 44

Email: M-team@UGent.be

Website : www.M-team.UGent.be

Twitter : www.twitter.com/MteamUGent

Facebook : www.facebook.com/pages/M-team

M-team^{UGent} is a part of the Mastitis and Milk Quality Research Unit at the Faculty of Veterinary Medicine at Ghent University in Belgium. The team's mission is to provide advice, service and training related to udder health and milk quality, tailored to the needs of dairy producers.



Table of contents

| | |
|---|-----------|
| Welcome to Ghent | 2 |
| Media partner | 4 |
| Good to know | 5 |
| Scientific program (August 4 & 5) | 6 |
| Technical program (August 6) | 15 |
| Social program (August 4 & 5) | 18 |
| Poster presentations | 23 |
| Program Committee | 31 |
| NMC Board of Directors and Staff 2014-2015 | 31 |

Welcome to Ghent

The National Mastitis Council (NMC) is a not-for-profit professional organization devoted to reducing mastitis and enhancing milk quality. The NMC promotes research and provides information to the dairy industry on udder health, milking management, milk quality, and milk safety. Founded in 1961, NMC has approximately 1,500 members worldwide, and holds an Annual and Regional Meeting each year.

This year we are excited to hold our first Regional Meeting outside North America, which has been made possible through a partnership with Ghent University, the M-team^{UGent}, and the Mastitis Research Workers Conference. This meeting promises something for everyone involved in mastitis and milk quality and has reached a record enrolment. We thank Ghent University and the M-team^{UGent} for their hard work.

We hope that attendees continue their involvement in NMC after the meeting by becoming a member or sustaining an existing membership and by volunteering in one of the many roles that members can play in the organization. Most of all we hope you enjoy the conference and take home some new knowledge!

With best regards,

John Middleton, President NMC

Some years ago a number of NMC members launched the “crazy” idea to organise an NMC meeting outside of North America... Many meetings and good discussions later, I am proud and excited to welcome you all here in Ghent, Belgium for what is indeed a unique meeting.

I have to thank past and present NMC board members and presidents, fellow members of the former International Advisory Committee, Anne Saeman (NMC executive director) and those that I forget for entrusting me and my team with the organisation of this Regional Meeting. Thanks should go as well to the Mastitis Research Workers because their decision to meet in Ghent has helped to open doors.

The number of registrations as well as the support from the industry have been overwhelming suggesting the program is attractive and people see the benefit of having NMC meetings in different places of the world. Let this be a first in a long list!

I want to thank you all for being here and participating in the discussions, short courses and seminars, reception and conference dinner. With attendees from over 40 countries this is a unique opportunity to discuss udder health and milk quality in an international context. Thank you to all speakers, moderators and instructors for helping to shape this meeting. Without their commitment we would not have been able to organise it.

Together with all members of the M-team^{UGent}, I sincerely hope you all have a great time and that all your scientific as well as social expectations are met. Do not forget to sign up and become a member of the NMC, a highly respected organisation that has been there for more than 50 years promoting good science and sound knowledge related to udder health and milk quality.

With best regard,

Sarne De Vliegher, Head of the M-team^{UGent}

Media partner

#9 | VOLUME 4 | 2014 | JUNE | WWW.M2-MAGAZINE.ORG

M²-magazine

Magazine on Mastitis and Milk quality for the dairy professional



Why is vaccinating against mastitis so difficult?

Charlotte Hallen Sandgren, DeLaval: "Doing more with less"
Fokus planet quality system: milk quality and sustainability at FrieslandCampina



www.m2-magazine.org

Venue welcome reception (August 4)

AULA - Ghent University
Volderstraat 9
9000 Ghent

Venue scientific program (August 4-5)

AULA - Ghent University
Volderstraat 9
9000 Ghent

Venue conference dinner (August 5)

Gravenkasteel (Castle of the Counts)
Sint-Veerleplein 11
9000 Ghent

Venue technical program (August 6)

Short courses

Faculty of Law - Ghent University
Universiteitsstraat 4
9000 Ghent

- **Meeting point: registration desk @ AULA**

Industry seminars

AULA - Ghent University
Volderstraat 9
9000 Ghent

- **Meeting point: registration desk @ AULA**

Twitter

Use the hastag **#NMC2014** when tweeting about this conference

Wireless internet connection

Make a wireless connection with "UGentGuest". If you have set up to request an IP address automatically, you will receive an IP address starting with 193.190.8x. Now you are connected, but not yet authenticated. You should start a web browser and you will be redirected to a logon screen. Enter the username and password as mentioned below. After correct authentication you can use the Internet connection. Your connection to this wireless LAN is not encrypted. To protect your personal data, please use encrypted connections like https, imaps, ssh etc. or a VPN client. You're not allowed to pass on the login information to others.

Username/login: **guestNmc201**

Password: **4giJjxun**

Visit Ghent information centre

Oude Vismijn

Sint-Veerleplein 5 - 9000 Gent

9:30h > 18:30h

Phone: ++32 (0) 9 266 56 60

9:00h > 12:00h & 13:30h > 17:00h

Email: visit@gent.be

Certificate of attendance

A certificate of attendance will be provided to all attendees.

Belgian veterinarians can collect a continuing education certificate approved by the Veterinary Statutory Body at the registration desk - Belgische dierenartsen kunnen een door de Orde goedgekeurd certificaat ophalen op de registratiestand in het kader van de bijscholing - Les vétérinaires Belges peuvent collecter un certificat approuvé par l'Ordre au secrétariat dans le cadre du formation continu.

Scientific program (August 4 & 5)

Monday, August 4 –

General introduction & Welcome reception

Registration @ AULA starting at 15h30

| | SUBJECT/TITLE | SPEAKERS/ MODERATORS |
|---------------|---|--|
| 17h30 – 17h45 | Welcome and introduction to the meeting | Sarne De Vliegheer, Ghent University, Belgium |
| 17h45 – 18h05 | Introduction to the National Mastitis Council by the President | John Middleton, University of Missouri, USA |
| 18h05 – 18h25 | The use of antimicrobials in prevention and cure of mastitis: what is our responsibility - INDUSTRY VIEW | Tony Simon, Zoetis, United Kingdom |
| | <p>Industry responsibilities include both legal and societal responsibilities. Legal responsibilities include developing, manufacturing and marketing veterinary medicines (including antibiotics) with appropriate quality, safety and efficacy, together with robust mechanisms to capture and report pharmacovigilance information. Societal responsibilities are rather broader and include innovation: encouraging, developing and marketing of new antibiotic and non-antibiotic solutions to mastitis, as well as effective communication to customers and other stakeholders.</p> | |
| 18h25 – 18h45 | The use of antimicrobials in prevention and cure of mastitis: what is our responsibility – ACADEMIA VIEW | Tine Van Werven, Utrecht University, The Netherlands |
| | <p>This presentation will give an overview on how the academic world can help in further reducing the antimicrobial usage on a dairy farm via new insights (e.g. selective vs blanket dry cow therapy; implementation of treatment protocols; veterinary herd health management program) and the development/implementation of novel innovative strategies in the fight against mastitis.</p> | |

| | | |
|---------------|--|--|
| 18h45 – 19h05 | The use of antimicrobials in prevention and cure of mastitis: what is our responsibility – REGULATORS' VIEW | Jordi Torren Edo, European Medicines Agency, United Kingdom |
| | This presentation will give an overview on the regulation of antimicrobials in the EU. Some recommendations of regulators on the use of antimicrobials will be listed. The data of the EVSAC project focussing on the use of antimicrobials will be presented. | |
| 19h05 – 19h30 | DISCUSSION | Ron Erskine, Michigan State University, USA |
| 19h30 - 21h00 | WELCOME RECEPTION & POSTER SESSION @ PERISTYLUM (POSTER PRESENTATIONS FROM 20H00 - 20H30) | Test With Confidence™ IDEXX |

Tuesday, August 5 – General session & Conference dinner

Registration @ AULA starting at 07h00

| | SUBJECT/TITLE | SPEAKERS / MODERATORS |
|---------------|---|--|
| 08h00 – 08h15 | Welcome and introduction to the program | Sofie Piepers, Ghent University, Belgium |
| 08h15 – 08h45 | Fifty years of milk quality control in Flanders: an overview | Luc De Meulemeester, Milk Control Centre, Belgium |
| | The official quality control of raw milk started in Flanders only in 1964 although milk quality has always been high in the agenda since the early fifties. In this overview the evolution of the Flemish dairy sector, legislation, analysis methods and frequency and quality results will be discussed with special emphasis on somatic cell count results and udder health. | |

08h45 – 09h15

Risks, realities and responsibilities associated with mastitis treatments

Pamela Ruegg,
University of
Wisconsin, USA

Mastitis is a bacterial infection of the udder that is caused by a variety of pathogens and is recognized after the immune response of the cow has already responded to the infection. While inflammation almost always subsides within 4-6 days, the actual resolution of a clinical case is often difficult to discern. Some cases are spontaneously cured without treatment, some revert to a subclinical state, some respond well to antimicrobial treatments, and some are inherently resistant to most treatments. Treatment strategies vary among countries depending on the predominant pathogens, regulations regarding antimicrobial usage and local beliefs and customs. While treatment strategies may vary, there are some important treatment principles which are consistent throughout the world. These principles, such as knowledge of pathogens and medical history of the cow, can be used to guide mastitis treatments. This presentation will focus on application of scientifically based practical strategies to reduce the dependence on antibiotic therapy while still resulting in acceptable treatment outcomes.

09h15 – 09h45

Dry cow management

Greg Keefe,
University of Prince
Edward Island,
Canada

The dry period is an extremely important segment of the dairy cow's lactation cycle. The dry period offers a chance for the cow to physiologically prepare for the subsequent lactation and it provides an excellent opportunity to clear up lingering microbial infections through dry cow antibiotic therapy. There are also risks associated with the dry period, including the potential for high new intramammary infection rates, primarily due to bacteria from the environment. The dry period is a time of frequent antibiotic treatment, often for the prevention of new infections. Prophylactic antibiotic use in agriculture is under intense scrutiny worldwide. This has led to a resurgent interest in selective dry cow therapy and non-antibiotic alternatives.

This presentation will review the current research regarding best management practices for dry cows, focussing on methods and technology with practical application on commercial dairy herds.

09h45 – 10h15

DISCUSSION

Andrew Biggs, The
Vale Veterinary
Group, United
Kingdom

10h15 – 10h45

COFFEE AND TEA BREAK & POSTERSESSION @ PERISTYLUM

10h45 – 11h15

Immunity and mastitis

Lorraine Sordillo,
Michigan State
University, USA

The severity and duration of mastitis is dependent on the efficiency of mammary gland defense systems. Inflammation is a critical part of the initial immune response to invading bacterial that can determine if new intramammary infections become established. The inflammatory response should not only result in a rapid escalation of local antimicrobial factors, but also in the movement of leukocyte and plasma components from the blood and into infected tissues to kill invading pathogens. Once the bacterial is destroyed, the inflammatory response should resolve and the immune system returns to homeostasis. An efficient inflammatory response can result in the rapid elimination of infectious pathogens without any noticeable change to the mammary tissue or milk. An overly aggressive or prolonged inflammatory response, however, can cause damage to mammary tissues and contribute to reduced milk production associated with mastitis. The ways in which inflammation can either contribute to the resolution of intramammary infections or the pathology associated with mastitis will be discussed. Strategies that optimize the efficiency of mammary gland immune responses to rapidly eliminate bacteria or attenuate dysfunctional inflammatory responses may mitigate the detrimental impact that mastitis has on milk quality and quantity.

| | | |
|---------------|---|---|
| 11h15 – 11h45 | <p>Selection for mastitis resistance</p> <p>The paper will provide an overview of the current genetic and genomic strategies that are being used, the challenges that are in place, and how these marker systems can be used for greater understanding of the mechanisms associated with mastitis resistance and developing new strategies for mastitis control.</p> | <p>Gina Pighetti, University of Tennessee, USA</p> |
| 11h45 – 12h00 | <p>DISCUSSION</p> | <p>David Kerr, University of Vermont, USA</p> |
| 12h00 – 12h30 | <p>Industry Lunch Forum by CID LINES</p> | <p>Joséphine Verhaeghe, CID LINES, Belgium</p>  |
| 12h30 – 13h00 | <p>Industry Lunch Forum by ELANCO</p> | <p>Michael Overton, Elanco Knowledge Solutions, USA</p>  |
| 13h00 – 14h00 | <p>LUNCH @ PERISTYLUM</p> | |
| 14h00 – 14h30 | <p>Update on “contagious” mastitis: <i>Staphylococcus aureus</i> and <i>Streptococcus agalactiae</i></p> <p>Contagious mastitis encompasses a number of host-adapted pathogens that usually spread cow-to-cow during the milking process. <i>Staphylococcus aureus</i> is currently considered the most prevalent contagious mastitis pathogen in many regions of the world. While <i>Streptococcus agalactiae</i> was once the most prevalent contagious pathogen, the advent of intramammary antimicrobials for lactating and dry cows allowed control and eradication of <i>Streptococcus agalactiae</i> on many farms. In contrast, <i>Staphylococcus aureus</i>, particularly in older cows with chronic infections, can be very refractory to antimicrobial treatment.</p> | <p>John Middleton, University of Missouri, USA</p> |

Control of transmission of these pathogens relies heavily on adequate milking time hygiene procedures. Both of these pathogens have the potential to be zoonotic, spread from animals to humans, and recent efforts using modern molecular methods have studied the relationships between human and animal infections. This talk will review some of salient features of these two pathogens and discuss their implications for cow and human health.

14h30 – 15h00

Update on emerging pathogens: *Mycoplasma* and *Prototheca*

Larry Fox,
Washington State
University, USA

Mycoplasma sp. have long been regarded as causes of bovine diseases, such as otitis, pneumonia, arthritis and mastitis and will be the primary focus of this discussion. Increased prevalence of mycoplasma mastitis has been rather marked over the last decade and appears to be related to increasing herd size and the associated importation of cattle into herds as they expand. Transmission has traditionally been viewed as occurring during milking time and thus controlled by hygiene. Evidence now points to the importance of asymptomatic carriage as part of the transmission of this disease and nasal discharges are implicated as a major component of transmission. Control strategies advocated are strict milking time hygiene and teat dip. Monitoring the herd prevalence of mycoplasma mastitis through bulk tank cultures is advocated. Such monitoring will alert a dairy manager of a potential mycoplasma mastitis outbreak. Efforts to determine the infected cows can then be made when positive bulk tank mycoplasma culture results are known. Efforts to eradicate the disease can be made once cows have been identified, although it has been reported that some herds control the disease without selective culling or segregation. The emergence of *Prototheca sp.* has been more recent with an increasing number of reported and studied cases of bovine prototheca mastitis around the world. The epidemiology of these outbreaks has been less clear than for mycoplasma mastitis.

A significant source of mastitis pathogens in total confinement systems is the material used for bedding cows either in stalls or loose housing. Organic bedding materials such as straw, wood products and recycled manure commonly contain few mastitis pathogens prior to use as bedding. However, these organic products rapidly become contaminated with the mastitis pathogen populations increasing 10,000-fold within 24 hours. Efforts to control mastitis populations in organic beddings with sanitizing and disinfecting agents have been unsuccessful. Daily replacement of bedding in stalls reduces teat end exposure to coliforms. Inorganic bedding, such as sand, support reduced bacterial populations compared with organic bedding. The bacterial contamination of sand bedding is directly related to the moisture and organic contamination. Reclaiming and recycling of sand from manure often leads to higher organic content of bedding and greater exposure to mastitis pathogens compared with fresh sand. The exposure of cows managed in pasture-based systems to mastitis pathogens is largely dependent upon forage coverage of the soil and stocking rate. Management practices resulting in barren soils in maternity pens, loafing areas, paddocks and cow races can expose cows to greater populations of mastitis pathogens than those in organic bedding materials. Overstocking and feeding corn enriched rations will increase exposure to mastitis pathogens of fecal origin in all management systems. Based upon susceptibility to new intramammary infections by mastitis pathogens, the ranked priority areas to concentrate management for reducing exposure to environmental pathogens are the periparturient, recently dried-off, lactating, and dry cow environments.

| | | |
|---|--|---|
| 15h30 – 16h00 | Update on opportunistic pathogens: Coagulase-negative staphylococci | Suvi Taponen, University of Helsinki, Finland |
| <p>Coagulase-negative staphylococci (CNS) are the most frequently isolated bacteria in cow's milk samples. They cause intramammary infections and increased milk somatic cell count (SCC), but the importance of this group of bacteria on udder health is highly debated. The CNS cause mainly subclinical mastitis and the increase in SCC is usually low to moderate. Some studies have found a protective effect of CNS infection or teat colonization on <i>S. aureus</i> infections and even a positive effect on milk production but in other studies such effects were not found. The CNS group consists of about 50 species and subspecies, of which about ten are isolated in bovine milk samples. Although in veterinary practice CNS still are treated as a group, the development of genotype-based identification methods has made identification of CNS species easier, cheaper and more accurate. Several recent studies have focused on characteristics of individual CNS species and possible differences between certain predominant CNS species as cause of mastitis. This presentation will focus on the recent research on bovine mastitis-associated coagulase-negative staphylococci.</p> | | |
| 16h00 – 16h30 | DISCUSSION | Herman Barkema, University of Calgary, Canada |
| 16h30 – 17h00 COFFEE AND TEA BREAK + POSTER SESSION @ PERISTYLUM | | |
| 17h00 – 17h30 | Liner performance and teat health | Ian Ohnstad, The Dairy Group, United Kingdom |
| <p>This paper will concentrate on some of the latest thinking on the interaction between the milking liner and teat health and the importance of choosing the most suitable liner for the milking herd. After ensuring the liner is the most suitable fit for the average teats in the herd, the paper will then discuss how the performance of the liner can be manipulated by changing the milking system vacuum level and the liner open 'b' phase of the pulsation cycle.</p> | | |

| | | |
|--|---|---|
| 17h30 – 18h00 | Udder health programs in the world | Theo Lam, Animal Health Service and Utrecht University, The Netherlands |
| <p>Over the years, in many countries in the world programs were started with the aim to improve udder health and milk quality. In this presentation an overview will be given of current programs that are known to the authors. Different approaches will be compared, and advantages and disadvantages of different approaches will be discussed. As far as available, results will be evaluated, with respect to milk quality, mastitis, attitude towards the subject and economy. Finally the added value of these types of projects will be discussed, including recommendations for future programs.</p> | | |
| 18h00 – 18h30 | DISCUSSION | Simon Dufour, University of Montreal, Canada |
| <p>20h00 – 23h00 CONFERENCE DINNER @ “THE CASTLE OF THE COUNTS”</p> | | |

Technical program (August 6)

Registration @ AULA from 07h00

Short courses @ FACULTY OF LAW (*/**)

**Morning
(09h00 – 12h00, including coffee break at 10h20)***

| SUBJECT/TITLE | INSTRUCTOR(S) | LECTURE ROOM |
|--|--|----------------|
| 1. On-farm culture systems | Sandra Godden & Jennifer Timmerman & Erin Royster, University of Minnesota, USA | Auditorium LLM |
| 2. Mastitis – It's all about communication and motivation | Roeland Wessels, Sint-Anna advice, The Netherlands - Theo Lam, Animal Health Service and Utrecht University, The Netherlands | Pleitlokaal |
| 3. Failure of mastitis therapy – Is it the drugs, bugs, cows or us? | John Middleton, University of Missouri, USA – Ron Erskine, Michigan State University, USA | Auditorium A |
| 4. Pain and mastitis | Christina Petersson-Wolfe, VirginiaTech, USA | Auditorium C |
| 5. How good is your data? - A new approach to improve farm data quality | Miel Hostens, Ghent University, Belgium | Auditorium B |



Lunch on your own

**Afternoon
(14h00 – 17h00, including coffee break at 15h20)****

| SUBJECT/TITLE | INSTRUCTOR(S) | LECTURE ROOM |
|--|--|----------------|
| 6. Unlocking the potential of precision dairy farming mastitis detection technologies | Jeffrey Bewley & Amanda Sterett, University of Kentucky, USA | Auditorium LLM |

| | | |
|---|---|--------------|
| 7. The role of the microbiology laboratory in mastitis control | Paolo Moroni, Cornell University, USA - Allan Britten, Udder Health Systems, USA - Larry Fox, Washington State University, USA - Marcos Munoz, University of Concepción, Chile - John Middleton, University of Missouri, USA - Ruth Zadoks, University of Glasgow, United Kingdom | Pleitlokaal |
| 8. Understanding immune function and stress in dairy cattle | Arnout Dekker, Prince Agri, Netherlands - David Kirk, Prince Agri, USA | Auditorium B |

*Meeting point: registration desk @ AULA at 8h45 - participants will be guided to the Faculty of Law
 **Meeting point: registration desk @ AULA at 13h45 - participants will be guided to the Faculty of Law

Farm visit and cheese plant tour*** - lunch included

| | Subject/title | Instructors |
|---------------|---|---|
| 09h00 – 12h00 | Visit and workshop commercial dairy farm | Peter Edmondson, Shepton Veterinary Group, United Kindgom - Pieter Passchyn Milk@vice and Ghent University, Belgium |
| | or | Representatives cheese factory |
| | Visit cheese plant Milcobel | |
| 12h00 – 14h00 | LUNCH @ FARM | |
| 14h00 – 17h00 | Visit cheese plant Milcobel | Representatives cheese factory |
| | or | |
| | Visit and workshop commercial dairy farm | Peter Edmondson, Shepton Veterinary Group, United Kindgom - Pieter Passchyn Milk@vice and Ghent University, Belgium |

***Transportation by bus from city centre of Ghent - meeting point: registration desk @ AULA at 7h45

Industry seminars @ AULA

Morning (09h00 – 12h00) – “Immunology and pathology of the udder”



| | SUBJECT/TITLE | SPEAKERS |
|--------------------------|--|---|
| 09h00 – 09h40 | General aspects immunology of the udder | Ynte Schukken, Animal Health Service, The Netherlands and Cornell University, USA |
| 09h40 – 10h20 | History and benefits of the J5 <i>E. coli</i> vaccine | Joe Hogan, Ohio State University, USA |
| 10h20 – 10h40 | COFFEE AND TEA BREAK @ PERISTYLIUM | |
| 10h40 – 11h20 | Mechanism of bio-film formation | Antoni Prenafeta, Hipra S.A., Spain |
| 11h20 – 12h00 | Vaccination against mastitis: an overview | Sofie Piepers, Ghent University, Belgium |
| Lunch on your own | | |

Afternoon (14h00 – 17h00) – “Proper milk extraction: methods and technologies. Balancing milking efficiency, udder health and milk quality - Doing it right in all herds at all times”



| | SUBJECT/TITLE | SPEAKERS |
|---------------|--|--|
| 14h00 – 14h40 | Teat prep procedure and cleaning-disinfection options | Andrew Bradley, QMMS, United Kingdom |
| 14h40 – 15h20 | Effects of vacuum dynamics on milking performance, teat condition and udder health. Balancing milk out time and animal requirements | Rupert Bruckmaier, University Bern, Switzerland |
| 15h20 – 15h40 | COFFEE AND TEA BREAK @ PERISTYLIUM | |
| 15h40 – 16h20 | Liner type and impact on teat health, milk yield and milking performance | Nils Alveby, Sweden - Angelika Haeussermann, University of Kiel, Germany |
| 16h20 – 17h00 | Post milking disinfection option, opportunities and issues | Tom Hemling, DeLaval, USA |

Social program (August 4 & 5)

August 4:

Welcome reception @ AULA (19h30-21h00)

AULA - Ghent University
Volderstraat 9
9000 Ghent



August 5:

**Conference dinner @ Castle of the Counts
(20h00-23h00)**

Gravenkasteel (Castle of the Counts) (walking distance from AULA)
Sint-Veerleplein 11
9000 Ghent



Elanco

TM

YOU SEE MASTITIS YOU SEE THE BIG PICTURE YOU USE UBROLEXIN®

The steady rise in the prevalence of antibiotic resistant organisms and the threat they pose to human health is an increasing concern on an international basis.¹ First-line use of some antibiotics – 3rd and 4th generation cephalosporins in particular – are now being discouraged by regulatory bodies and scientific authorities,¹ in order to preserve the long-term efficacy of these agents in both cattle AND humans.

Ubrolexin® has equivalent efficacy to 3rd and 4th generation cephalosporins,¹ which is good news for your ongoing management of mastitis. Make Ubrolexin® your first choice therefore. For everybody's sake.



 **Boehringer
Ingelheim**

Ubrolexin intramammary suspension for lactating dairy cows contains 200mg Cefalexin and 100,000 I.U. Kanamycin. **Indications:** Treatment of clinical mastitis in lactating dairy cows for bacteria susceptible to the combination of cefalexin and kanamycin such as *Staphylococcus aureus*, *Streptococcus agalactiae*, *Streptococcus uberis* and *Escherichia coli*. **Dosage and Administration:** For intramammary use. Treat the selected quarter(s) twice, leaving an interval of 24 hours between treatments. **Withdrawal period:** Mast and milk: 10 days. Milk: 120 hours. **Boehringer Ingelheim Animal Health GmbH Binger Straße 173, 55276 Ingelheim am Rhein/ Germany. Tel: +49(0)6177-143037. Use antibiotics responsibly. References: 1. Report of the 3rd Meeting of the WHO Advisory Group on Integrated Surveillance of Antimicrobial Resistance 2011. 2. Bealby AJ, & Green MJ. Journal Dairy Science 2009, 92: 1041-1053. Date of preparation: April 2014.**

ubrolexin®

PROTECTS COWS.
CONSIDERS PEOPLE.



SYMPOSIUM “Immunology and pathology of the udder”



Wednesday, August 6th • 09:00h - 12:00h • Aula
National Mastitis Council Regional Meeting 2014 • Ghent, Belgium

Programme

Welcome and Introduction

Chairman: **SARNE DE VLEUGHER**, M-team UGent, Department of Obstetrics, Reproduction and Herd Health, Faculty of Veterinary Medicine, Ghent University (Belgium)

- 09:00** General aspects of udder immunology
YNTÉ SCHUKKEN, Chief Scientific Officer at GD Animal Health, Professor of Herd Health and Epidemiology at Cornell University (USA)
- 09:40** History and benefits of the J5 E. coli vaccine
JOSEPH HOGAN, Professor and Associate Chair in the Department of Animal Sciences at the Ohio State University (USA)
- 10:20** Coffee and tea break
- 10:40** Mechanism of biofilm formation
ANTONI PRENAFETA, HIPRA R&D Coordinator & Researcher (Spain)
- 11:20** Vaccination against mastitis: an overview
SOFIE PIEPERS, M-team UGent, Department of Reproduction, Obstetrics and Herd Health, Faculty of Veterinary Medicine, Ghent University (Belgium)

STARTVAC®

STARTVAC®, adjuvanted inactivated vaccine, bovine mastitis, in injectable emulsion. **Composition:** Escherichia coli (E) inactivated + 50 FCU¹ Streptococcus agalactiae (S) lower SP 140 inactivated, containing 50mcg Resorcinol Antigen (Complexed Ag) + 50 FCU² + 10 FCU³ Rabbit offshore-ova in 50% of the animals (average). **Indications:** for use in healthy cows and heifers 22 months of age or older. In dairy cattle herds with recurrent mastitis problems, to reduce the incidence and the severity of the agalactiae infection and the mastitis caused by Streptococcus agalactiae, infection of mastitis-negative dairy herds. **Administration:** single intramuscular use. The vaccinations should be previously administered on the opposite side of the neck. **Dosage:** administer one dose (1 ml) by deep intramuscular injection in the neck muscles and according to the following schedule: First vaccination at 45 days before the expected parturition date. Second vaccination 30 days thereafter corresponding to 15 days before the expected parturition date. Third vaccination 30 days after the second injection (twelve weeks interval). The full immunisation program should be repeated with each lactation. **Side effects & Contraindications:** **Adverse reactions:** Slight to moderate transient local reactions may occur after the administration of one dose of vaccine. They would mainly be swelling (up to 5 cm) on average, which disappears within 1 or 2 weeks at most. In some cases, there may also be pain at the inoculation site that spontaneously subsides in a maximum of 5 days. Animals vaccinated with STARTVAC do not show adverse reactions after their future calving after the administration of one dose of vaccine. **Contraindications:** None. **Withdrawal period:** None. **21 days.** Milk: None. **Special Precautions:** This healthy animals should be vaccinated. Allow the vaccine to reach a temperature of +15 to +25 °C before administration. **Store before use:** Special precautions for the proper administration of the vaccine. This product contains mineral oil. Accidental respiratory/mucosal exposure may result in severe pain and swelling, particularly if repeated for a period or longer, and in rare cases could result in the loss of the affected limb if prompt medical attention is not given. Can be used during pregnancy and lactation. Store and transport refrigerated, +2 to +8 °C and protected from light. Do not freeze. For more information, please refer to the most recent. **Packaging:** Cardboard box with 20 vials of 1 dose. Cardboard box with 1 vial of 5 doses. Cardboard box with 1 vial of 20 doses. Under veterinary prescription. **Marketing Authorisation Numbers:** EU/2/05/182/023 EU/2/05/182/024 EU/2/05/182/026 Marketing authorisation holder: LABORATORIOS HIPRA, S.A. Avda. de Selva, 135. 17170 Amer (Girona) Spain. Tel. (34) 972 43 06 60 Fax (34) 972 43 06 61 hpra@hipra.com www.hipra.com

Laboratorios Hipra, S.A.
Avda. de Selva, 135
17170 Amer (Girona)
Spain

Tel. (34) 972 43 06 60
Fax (34) 972 43 06 61
hpra@hipra.com
www.hipra.com


ORBESEAL[®] MADE FOR MAXIMUM PROTECTION.

Thanks to the scientifically proven properties of the silica component in the formulation, OrbeSeal moulds to the shape of the teat canal and creates a protective barrier against mastitis. This is why farmers have relied on OrbeSeal for more than 10 years to prevent mastitis infections.

The dry period represents a time of significant risk to cows - up to 70% of all new intramammary infections are acquired during the dry period. Roughly half of all high yielding dairy cows may fail to develop a complete keratin plug in the dry period, without this barrier there is a greater risk of bacteria entering the udder. The use of OrbeSeal at dry off ensures the barrier against infection is present and significantly reduces the incidence of subsequent intramammary infections and clinical mastitis^{1,2}.

Speak to your vet for more information on the use of OrbeSeal.

1. Mütze K, et al. The effect of dry cow antibiotic with and without an internal teat sealant on udder health during the first 30 d of lactation: a field study with matched pairs. *J Dairy Res*. 2012 Nov; 79 (4): 477-84. 2. Bradley AJ, Green MJ. The importance of the non-lactating period in the epidemiology of intramammary infection and strategies for prevention. *Vet Clin North Am Food Anim Pract* 2004; 20: 547-568. 3. Rabbee AR & Lewis JJ. The effect of internal teat sealant products (Teatseal and OrbeSeal) on intramammary infections, clinical mastitis, and somatic cell counts in lactating dairy cows: A meta-analysis. *J Dairy Sci* 2015; 98: 1-17.

OrbeSeal contains 2% chlorhexidine substrate. Withdrawal period: Zero days. 
For further information please contact your veterinary surgeon or Zoetis UK Ltd, Walton Oaks, Dorking Road, Walton on the Hill, Tadworth, Surrey, KT20 7NS. Customer Support 0845 3006034. www.zoetis.co.uk Always seek the advice of your medicines provider. Use medicines responsibly (www.noah.co.uk/responsibly) AH244/14



OrbeSeal

FOR ANIMALS. FOR HEALTH. FOR YOU.

zoetis

(*presenting author at the time of printing)

1. The effect of parity, age and season on somatic cell count of dairy cows with subclinical mastitis

Ahmet Sabuncu*, Sinem Ozlem Enginler, Emek Dumen
Faculty of Veterinary Medicine, Istanbul University, Avcılar, Istanbul, Turkey

2. Effect of intravenous infusion of hypertonic saline on the treatment of cows with *Escherichia coli* mastitis

Hossein Hamali*¹, Ahmad Bargi², Katayon Nofouzi³, Adel Saberivand¹
¹Dept. Clinical Sciences, Veterinary Faculty, University of Tabriz, Iran, ²Undergraduate student, University of Tabriz, Iran, ³Dept. Pathobiology, University of Tabriz, Iran

3. Association of *CXCR1* gene polymorphisms with incidence rate of clinical mastitis, and test-day somatic cell count and milk production

Joren Verbeke*, Mario Van Poucke, Luc Peelman, Sofie Piepers, Sarne De Vlieghe
M-team and Mastitis and Milk Quality Research Unit, Ghent University, Ghent, Belgium

4. Analyses of eicosanoid profiles in the milk of cows with *Escherichia coli* mastitis as potential targets for intervention

Jeff Gandy, Vengai Mavangira, Lorraine Sordillo
College of Veterinary Medicine, Michigan State University, East Lansing, Michigan, USA

5. Bovine blood neutrophil function is altered by stage of lactation but not by nutrient supply

Yang Qu¹, Theodore Elsasser², Kasey Moyes*¹
¹University of Maryland, College Park, Maryland, USA, ²Bovine Functional Genomics Laboratory, Beltsville, Maryland, USA

6. Post milking teat disinfection: Effectiveness of teat coverage using a vacuum operated teat spray system

Brian Pocknee*¹, Ian Ohnstad¹, Colin Kingston²
¹The Dairy Group, Taunton, Somerset, United Kingdom, ²Ambic Equipment Ltd, Witney, Oxfordshire, United Kingdom

7. Association between acute phase protein concentration and PCR-diagnosed mastitis pathogens in the cow composite milk

Piret Kalmus*, Toomas Orro
Estonian University of Life Sciences, Tartu, Estonia

8. Identification and prevalence of coagulase-negative *Staphylococcus* species in Sardinian dairy sheep herds

Simone Dore*^{1,2}, Sebastiana Tola¹, Ennio Bandino¹, Pierangela Cabras¹, Giovanni Antonio Carboni¹, Vittoria D'Ascenzo¹, Manuele Liciardi¹, Stefano Lollai¹, Carla Longheu¹, Antonio Vidili¹, Eugenia Agnese Cannas¹

¹National Reference Laboratory for Sheep and Goat Mastopathy, IZS Sardegna, Sassari, Italy, ²Current address: IZS Sardegna, Sassari, Italy

9. Role of virulence factors in determining subclinical mastitis in dairy Sarda sheep experimentally infected with *Staphylococcus epidermidis*

Simone Dore*^{1,3}, Stefano Lollai¹, Sebastiana Tola¹, Manuele Liciardi¹, Ilaria Duprè¹, Giovanni Sotgiu², Paola Nicolussi¹, Giovanni Antonio Pilo¹, Eugenia Agnese Cannas¹

¹National Reference Laboratory for Sheep and Goat Mastopathy, IZS Sardegna, Sassari, Italy, ²Department of Biomedical Sciences, University of Sassari, Sassari, Italy, ³Current address: IZS Sardegna, Sassari, Italy

10. Evaluation of milk somatic cell count as indicator of quarters for bacteriological culturing of high somatic cell count cows

Reshat Jashari, Sofie Piepers, Sarne De Vlieghe
M-team and Mastitis and Milk Quality Research Unit, Ghent University, Ghent, Belgium

11. A survey among Swedish veterinarians concerning treatment of clinical mastitis in dairy cows

Karin Persson Waller*^{1,2}, Vanja Hårdemark², Anna Duse^{1,2}

¹National Veterinary Institute, Uppsala, Sweden, ²Swedish University of Agricultural Science, Uppsala, Sweden

12. Diagnostic properties of three udder-health indicators in identifying cows with intramammary infection

Ann Nyman*¹, Karin Persson Waller^{1,2}, Ulf Emanuelson², Torben Larsen³, Torben Werner Benedsgaard³

National Veterinary Institute, Uppsala, Sweden, Swedish University of Agricultural Sciences, Uppsala, Sweden, Aarhus University, Tjele, Denmark

13. Determination of the probability of cure of mastitis by cell differentiation

Sonja Degen*¹, Martina Hoedemaker², Volker Krömker¹

¹University of Applied Sciences, Arts Hannover, Hannover, Germany, ²University of Veterinary Medicine, Clinic for Cattle, Hannover, Germany

14. Bacteria count in cotton towels after standard wash procedure

Michael Farre*

Dyr-laeger & Ko, Vejen, Denmark

15. Milk amyloid A in the laboratory diagnosis of mastitis

Gabriel Kováčik*¹, Csilla Tóthová¹, Oskar Nagy¹, Tibor Vozár²

¹University of Veterinary Medicine and Pharmacy, Košice, Slovak Republic, ²Veterinary Policlinic, Hranovnica, Slovak Republic

16. Efficacy of a cephalixin-kanamycin intramammary treatment of clinical mastitis: some European field data

Elke Abbeloos*¹, Monique Driessé², Sofie Piepers³

¹Boehringer Ingelheim Animal Health, Ingelheim and Rhein, Germany, ²Boehringer Ingelheim Animal Health, Alkmaar, The Netherlands, ³M-team and Mastitis and Milk Quality Research Unit, Ghent University, Ghent, Belgium

17. The use of antimicrobials on dairy farms in Flanders, Belgium

Marina Stevens*, Sofie Piepers, Sarne De Vlieghe

M-team and Mastitis and Milk Quality Research Unit, Ghent University, Ghent, Belgium

18. Susceptibility of mastitis pathogens to a cephalixin-kanamycin combination across Europe

Karlién Supré¹, Marc Saulmont², Thomas Peter³, Antón Esnal de la Presa⁴, Ingrid Botvliet⁵, Andrew Biggs⁶, Elke Abbeloos*⁷

¹Milkcontrol Centre, Flanders, Lier, Belgium, ²Association Régionale de Santé et d'Identification Animales, Ciney, Belgium, ³Milchtierherden-Betreuungs- und Forschungsgesellschaft, Wunstorf, Germany, ⁴Analytica Veterinaria, Vizcaya, Spain, ⁵Brabants Veterinair laboratorium, Diessen, The Netherlands, ⁶The Vale Veterinary Laboratory, Devon, United Kingdom, ⁷Boehringer Ingelheim Animal Health, Ingelheim am Rhein, Germany

19. What guides bovine teat macrophage heterogeneity? Teat macrophage subpopulations and the role of chemokines in their development

Hans-Joachim Schuberth*¹, Wolfram Petzl², Jamal Hussen¹

¹University of Veterinary Medicine, Immunology Unit, Hannover, Germany, ²Clinic for Ruminants, Ludwig-Maximilians-University, Munich, Germany

20. What guides bovine teat macrophage heterogeneity? Bovine monocyte subpopulations and their differentiation into macrophages

Jamal Hussen¹, Wolfram Petzl², Hans-Joachim Schuberth*¹

¹University of Veterinary Medicine, Foundation, Immunology Unit, Hannover, Germany, ²Clinic for Ruminants, Ludwig-Maximilians-University, Munich, Germany

21. Effect of antioxidant preparations, nonsteroid anti-inflammatory drug and an immunomodulator on blood antioxidant status of cows with clinical form of mastitis

Hanna Markiewicz¹, Marek Gehrke², Zdzisław Gajewski¹

Department of Large Animal Diseases with Clinic, Faculty of Veterinary Medicine, Warsaw, Poland, ²Institute of Veterinary Medicine, Poznan, Poland

22. Impact of intramammary treatment on gene expression profiles and leukocyte recruitment in bovine *Escherichia coli* mastitis

Anja Sipka^{*1}, Suzanne Klaessig¹, Gerald E. Duhamel¹, Jantijn Swinkels², Pascal Rainard³, Ynte Schukken¹

¹College of Veterinary Medicine, Cornell University, Ithaca, New York, USA, ²GD Animal Health Center, Deventer, The Netherlands, ³INRA, Infectiologie Animale et Santé Publique, Nouzilly, France

23. Lymphocyte subsets: interdependence of healthy and infected udder quarters

Maiara Blagitz^{*1}, Fernando Souza², Camila Batista³, Bruna Santos³, Claudia Stricagnolo¹, Andrea Parra³, Luis Fernando Azevedo³, Alice Della Libera³

¹UNOESC, Xanxerê, Santa Catarina, Brazil, ²EV-UFGM, Belo Horizonte, Minas Gerais, Brazil, ³FMVZ-USP, São Paulo, São Paulo, Brazil

24. Effect of bovine leukemia virus infection on milk lymphocyte subsets and milk B cell apoptosis

Maiara Blagitz¹, Fernando Souza², Camila Batista³, Kamila Santos³, Bruna Santos³, Claudia Stricagnolo¹, Andrea Parra³, Luis Fernando Azevedo³, Alice Della Libera^{*3}

¹UNOESC, Xanxerê, Santa Catarina, Brazil, ²EV-UFGM, Belo Horizonte, Minas Gerais, Brazil, ³FMVZ-USP, São Paulo, Brazil

25. Effect of dry cow antimicrobial therapy and teat sealant on the percentage of milk polymorphonuclear leukocytes during the early post-partum period

Jéssica Marochi¹, Gracieli Ferreira¹, Maria Andregueti¹, Marla Schneider¹, Lindomar Pessoa¹, Pedro Moreira¹, Érica Guirro¹, Fernando Souza², Alice Della Libera³, Maiara Blagitz^{*4}

¹UFPR, Palotina, Paraná, Brazil, ²EV-UFGM, Belo Horizonte, Minas Gerais, Brazil, ³FMVZ-USP, São Paulo, São Paulo, Brazil, ⁴UNOESC, Xanxerê, Santa Catarina, Brazil

26. First episode clinical *Staphylococcus aureus* mastitis: comparison of two intramammary 3-day treatments

Guillermo J.B. Ladaga^{1,2*}, Roberto L. Perna², Eduardo V. Moras², Federico Pont-Lezica¹, Gabriel de Erausquin^{1,3}

¹Grupo INCA, Buenos Aires, Argentina, ²Universidad de Buenos Aires, Argentina, ³University of South Florida, Tampa, Florida, USA

27. Effect of vaccination against mastitis during lactation on dynamic of *Staphylococcus aureus* infection

Fernando Souza^{*1}, Adriano Cunha¹, Dalila Rosa¹, Maria Aparecida Brito², Leticia Mendonça², Alessandro Guimarães², Maiara Blagitz³, Alice Della Libera³, Marcos Heinemann¹, Mônica Cerqueira¹

¹EV-UFGM, Belo Horizonte, Minas Gerais, Brazil, ²EMBRAPA-Gado de Leite, Juiz de Fora, Minas Gerais, Brazil, ³FMVZ-USP, São Paulo, São Paulo, Brazil

28. Milk prolactin response after induced intramammary infection with coagulase-negative staphylococci in dairy heifers

Kristine Piccart^{*1}, Sofie Piepers¹, Joren Verbeke¹, Noelita Melo de Sousa², Jean-François Beckers², Sarne De Vliegher¹

¹M-team and Mastitis and Milk Quality Research Unit, Ghent University, Belgium, ²University of Liège, Belgium

29. Udder health in a Danish compost bedded pack barn

Line Svennesen^{*}, Carsten Enevoldsen, Bjarne Bjerg, Ilka Christine Klaas
University of Copenhagen, Copenhagen, Denmark

30. Adhesion and resistance to phagocytosis in *Streptococcus uberis* clinical and subclinical isolates in bovine mastitis

Tiina Salomäki*, Joanna Hintukainen, Antti Iivanainen
University of Helsinki, Helsinki, Finland

31. Classification of udder health status of dairy cows and herds by use of time series data of lactate dehydrogenase

Christina Petersen, Carsten Ridder, Kristina Nielsen, John Christensen, Jens Blom
Lactec I/S, Hillerød, Denmark

32. Management practices associated with achieving milk quality premiums in Flemish dairy herds

Pieter Passchyn*^{1,2}, Sofie Piepers² and Sarne De Vliegher²

Milk@vice, Torhout, Belgium, ²M-team and Mastitis and Milk Quality Research Unit, Ghent University, Ghent, Belgium

33. Effect of intramammary infections with coagulase-negative staphylococci in early lactating dairy heifers on the quarter somatic cell count and quarter daily milk yield throughout first lactation

Dimitri Valckenier, Sofie Piepers, Sarne De Vliegher

Mastitis and Milk Quality Research Unit, Ghent University, Ghent, Belgium

34. Incidence of *Staphylococcus aureus* and *Streptococcus* species on a commercial dairy farm before and after using pre-milking disinfection (2010-2014)

Goran Bačić*,^{1,2} Nino Mačević¹, Tugomir Karadjole¹, Nikica Prvanović Babić¹, Martina Lojkić¹, Marina Pavlak¹

¹Veterinary Faculty Zagreb University, Zagreb, Croatia, ²Current address: Veterinary Faculty Zagreb University, Zagreb, Croatia

35. Genetic variation among isolates of *Streptococcus dysgalactiae* and *Streptococcus uberis* collected from cases of bovine clinical mastitis

Åsa Lundberg*^{1,2}, Anna Aspán¹, Karin Persson Waller^{1,2}

¹National Veterinary Institute, Uppsala, Sweden, ²Swedish University of Agricultural Sciences, Uppsala, Sweden

36. Quantitative stereological analysis of teat tissue composition

Wolfram Petzl*¹, Monique Lind¹, Hans-Joachim Schubert², Holm Zerbe¹

¹Clinic for Ruminants, Ludwig-Maximilians-University, Munich, Germany, ²University of Veterinary Medicine, Immunology Unit, Hannover, Germany

37. Immunomodulatory mastitis prevention post partum

Wolfram Petzl*¹, Katharina Zimprich¹, Hans-Joachim Schubert², Holm Zerbe¹

¹Clinic for Ruminants, Ludwig-Maximilians-University, Munich, Germany, ²University of Veterinary Medicine, Immunology Unit, Hannover, Germany

38. Farmers' motivation towards mastitis improvement in a multi-arm randomized field trial

Bart van den Borne*¹, Aurélie Tschopp¹, Martin Reist¹, Michèle Bodmer¹, Thomas Kaufmann², Adrian Steiner¹, Marie-Eve Cousin³

¹University of Bern, Bern, Switzerland, ²Bovine Health Service, Lindau, Switzerland, ³ETH Zurich, Zurich, Switzerland

39. A case report: Transmission of *Streptococcus agalactiae* could not be related to known human contact to other infected farms

Jørgen Katholm*¹ Uffe B.S. Sørensen², Torben W Bennedsgaard³

¹Knowledge center for Agriculture, Cattle, Aarhus N. Denmark, ²Department of Biomedicine, Aarhus University, Aarhus, Denmark, ³Institute of Animal Sciences, Aarhus University, Tjele, Denmark

40. A case study of a novel approach to mastitis vaccination in two dairy herds in the United Kingdom

Robert B. S. Drysdale

Westpoint Veterinary Group, Warnham, West Sussex, United Kingdom

41. Genotyping of *Staphylococcus aureus* from clinical mastitis in a commercial dairy farm

Martina Besozzi¹, Clara Locatelli¹, Claudia Pollera¹, Camilla Luzzago¹, Paola Cremonesi², Bianca Castiglioni², Nicola Rota¹, Antonio Casula¹, Roger Guix³, Valerio Bronzo¹, Paolo Moroni^{*1}

¹Università degli Studi di Milano, Milan, Italy, ²Istituto di Biologia e Biotecnologia Agraria, Consiglio Nazionale delle Ricerche, Lodi, Italy, ³Hipra, Girona, Spain

42. Multiple cases of mecc-MRSA in a Bavarian dairy herd

Katharina Schlotter¹, Reglindis Huber-Schlenstedt^{*1}, Armin Gangl¹, Helmut Hotzel², Stefan Monnecke^{3,4}, Elke Müller⁴, Annett Reibig⁴, Sabine Profft⁴, Ralf Ehrich⁴

¹Tiergesundheitsdienst Bayern e. V., Poing, Germany, ²Friedrich-Loeffler-Institut, Institute of Bacterial Infections and Zoonoses, Jena, Germany, ³Institute for Medical Microbiology and Hygiene, Technical University of Dresden, Dresden, Germany, ⁴Alere Technologies GmbH, Jena, Germany

43. Control of mastitis and somatic cell count in Mediterranean buffaloes using inactivated vaccine: comparison of two clinical trials

Jacopo Guccione^{*1}, Antonella Pesce², Diego Piantadosi¹, Caterina Salzano², Angela De Rosa¹, Gianni Tedeschi³, Silvia Fabbri¹, Paolo Ciaramella¹

¹University "Federico II" Napoli, Italy, ²Istituto Zooprofilattico Mezzogiorno, Caserta, Italy, ³SHIPRA Italia, Rovato, Italy

44. Detection of major mastitis pathogens by real-time polymerase chain reaction in absence of major-pathogen growth by culturing

Karlien Supré*, Koen Lommelen, Luc De Meulemeester

Flanders Milk Control Centre, Lier, Belgium

45. In vitro growth inhibition of bovine intramammary streptococci against oxacillin

Karlien Supré*, Koen Lommelen, Luc De Meulemeester

Flanders Milk Control Centre (MCC), Lier, Belgium

46. Bacteriological etiology of mastitis in Finland

Johanna Vakkamäki^{*1}, Suvi Taponen¹, Anna-Maija Heikkilä² and Satu Pyörälä¹

¹University of Helsinki, Helsinki, Finland, ²MTT Agrifood Research Finland, Helsinki, Finland

47. Comparison of diagnostic tests for detection of udder health status in Mediterranean Buffalo

Jacopo Guccione¹, Antonella Pesce², Marcus Doherr³, Francesca Garofalo², Antonio Di Loria⁴, Angela De Rosa¹, Arian Steiner⁵, Paola Ciaramella¹

¹University of Napoli "Federico II", Italy, ²Istituto Zooprofilattico del Mezzogiorno, Caserta, Italy, ³Veterinary Public Health Institute, Vetsuisse-Faculty, University of Bern, Switzerland, ⁴University of Magna Graecia of Catanzaro, Italy, ⁵Clinic for Ruminants, Vetsuisse-Faculty, University of Bern, Switzerland

48. Observation of mastitis parameters in three herds before and during the first 12 months of a vaccination program

Andrew Biggs^{*1}, Daniel Zalduendo²

¹The Vale Veterinary Group, Tiverton Devon, United Kingdom, ²Hipra, Amer, Spain

49. Spatial distribution and association between temperature and coliform concentration in a compost bedded pack

Ana Oliveira¹, Samuel Fávero¹, Fábio Portilho¹, Arthur Almeida¹, Cassiano Victória¹, Hélio Langoni¹, José Pantoja^{*1}

¹São Paulo State University, Botucatu, São Paulo, Brazil, ¹Current address: São Paulo State University, São Paulo, Brazil

50. Factors associated with bedding concentration of environmental mastitis pathogens on compost bedded pack dairies

Samuel Fávero¹, Fábio Portilho¹, Ana Oliveira¹, Hélio Langoni¹, José Pantoja^{*1}

¹São Paulo State University, Botucatu, São Paulo, Brazil, ¹Current address: São Paulo State University, São Paulo, Brazil

51. On-farm employee education programs, empowering milk quality teams

G. Andres Contreras, Ronald Erskine*

Michigan State University, East Lansing, Michigan, USA

52. Sample size calculation for non-inferiority teat dip trials conducted in pasture based systems

*Paulo César Duque-Madrid*¹, Alejandro Ceballos-Marquez¹, Mario López-Benavides², Néstor Alonso Villa-Arcila¹, Sebastián Sánchez-Arias¹, Marcos Muñoz-Domón³*

¹Universidad de Caldas, Manizales, Colombia, ²DeLaval Manufacturing, Kansas City, Missouri, USA, ³Universidad de Concepción, Concepción, Chile

53. The effect of sampling technique on the PCR-based bacteriological results of milk samples

*Heidi Hiittö*¹, Heli Simojoki¹, Suvi Taponen¹, Piret Kalmus², Jani Holopainen³, Satu Pyörälä¹*

¹University of Helsinki, Finland, ²Estonian University of Life Sciences, Estonia, ³Thermo Fisher Scientific Ltd., Finland

54. Effect of vitamin D metabolites on *Staphylococcus aureus* invasion into bovine mammary epithelial cells

Yuan Yue, Charlotte Lauridsen, Soren K. Jensen, Stig Purup*

Aarhus University, Tjele, Denmark

55. The mammary immune response is specific for bacterial species and bacterial strains

Olga Wellnitz, Rupert M. Bruckmaier

Veterinary Physiology, University of Bern, Bern, Switzerland

56. Development of AMS in the Nordic countries from 1996 - 2013

Snorri Sigurdsson, Jørgen Katholm*

Knowledge Center for Agriculture, Cattle, Aarhus N. Denmark

57. Udder health management in modern dairy farms

*Mari Hovinen*¹, Timo Hurme², Kristiina Sarjokari¹, Marianna Norring¹, Leena Seppä-Lassila¹, Timo Soveri¹*

¹University of Helsinki, Helsinki, Finland, ²MTT Agrifood Research Finland, Jokioinen, Finland

58. Interpretation of *Mycoplasma bovis* PCR testing in bulk tank and DHI samples from cattle herds

*Jørgen Katholm*¹, Mette Bisgaard Petersen², Liza Rosenbaum Nielsen², Kaspar Krogh¹*

¹Knowledge Centre for Agriculture, Cattle, Denmark, ²University of Copenhagen, Denmark

59. Success of a natural exposure mastitis trial over a three month period to demonstrate the efficacy of a novel iodine barrier teat disinfectant

*Mario Lopez-Benavides*¹, Alfonso Lago², Tom Hemling¹*

¹DeLaval Manufacturing, Kansas City, Missouri, USA, ²DairyExperts, Tulare, California, USA

60. Parameters for describing the relation between pressure at the teat tip during milking and their connection to development of hyperkeratosis

Ute Müller^{1}, Martin Spohr², Franz Uhlenbruck²*

¹Rheinische Friedrich-Wilhelms-University of Bonn, Bonn, Germany, ²Udder Health Service Baden-Wuerttemberg, Fellbach, Germany

61. Systematic review and meta-analysis of the effect of selenium supplementation on udder health in cattle

*Claudia Cobo¹, Néstor Villa¹, Paulo Duque¹, Jeff Wichtel², Javier Sánchez², Alejandro Ceballos*¹*

¹Universidad de Caldas, Manizales, Colombia, ²University of Prince Edward Island, Charlotte-town, PEI, Canada

62. Milk yield, reticulorumen temperature, rumination time, and neck activity changes around mastitis

Amanda Sterrett, Barbara Wadsworth, Katherine Akers, Joey Clark, Constance Wood, Kristen McQuerry, Robert Harmon, Michelle Arnold, William Silvia, Jeffrey Bewley*

University of Kentucky, Lexington, Kentucky, USA

63. Mastitis control: the use of a vaccine

Elena de Torres*, Guillermo Sierra, Fernanda Zorrilla
Facultad de Veterinaria, Universidad de la República, Montevideo, Uruguay

64. Social influences on clinical mastitis treatment

Jantijn Swinkel*¹, Aniek Hilkens², Veit Zoche-Golob³, Volker Krömker³, Manon Buddiger², Jolanda Jansen², Theo Lam¹

¹GD Animal Health, Deventer, The Netherlands, ²Wageningen University, The Netherlands, ³Hannover University, Germany

65. Performance of a hydrogen peroxide teat disinfectant

Anouk Lanckriet*¹, Sarah Couder¹, Tom Hemling², Elisabeth French²

¹DeLaval NV, Ghent, Belgium, ²DeLaval Inc., Kansas City, Missouri, USA

66. Motivations for frequent SCC indications in mastitis management

Anneke Gouw*¹, Vera Voogt², Rik van der Tol³, Arjen van der Kamp¹

¹Lely International, Maassluis, the Netherlands, ²Wageningen University, Wageningen, the Netherlands, ³Lely Industries, Maassluis, the Netherlands

67. Risk factors for Staphylococcus aureus in bulk tank milk

Ingrid den Uijl, Jantijn Swinkels*, Christian Scherpenzeel, Michel Swarts, Hans Miltenburg

GD Animal Health, Deventer, the Netherlands

68. Use of bulk tank milk culture on Dutch dairy farms

Hans Miltenburg*, Ingrid den Uijl, Christian Scherpenzeel, Michel Swarts, Jantijn Swinkels

GD Animal Health Service, Deventer, the Netherlands

69. Evaluation of the use of dry cow antibiotics in low somatic cell count cows

Christian Scherpenzeel*¹, Ingrid den Uijl¹, Gerdien van Schaik¹, Richard Olde Riekerink¹, Judith Keurentjes¹, Theo Lam^{1,2}

¹GD Animal Health, Deventer, the Netherlands, ²Utrecht University, Utrecht, the Netherlands

70. Retrospective analysis of Prototheca bovine mastitis in the northwest of Portuguese dairy farms

Sara Marques*^{1,2}, Eliane Silva^{1,2}, Gertrude Thompson^{1,2}

¹CIBIO/InBIO – University Porto, Vila do Conde, Portugal, ²ICBAS - University Porto, Porto, Portugal

71. Studies of Staphylococcus aureus infection in mammary epithelial cells

Karin Artursson*¹, Mikaela Magnusson¹, Jenny Schelin², Jonas Bergquist³

¹National Veterinary Institute, Uppsala, Sweden ²Technical Microbiology, Lund University, Lund, Sweden, ³Science for Life Laboratory, Uppsala, Sweden

72. Herd level risk factors associated with the presence of coagulase-negative Staphylococcus species in bulk milk

Anneleen De Visscher*¹, Freddy Haesebrouck², Sofie Piepers¹, Karlien Supré³, Sarne De Vliegher¹

¹M-team and Mastitis and Milk Quality Research Unit, Ghent University, Ghent, Belgium, ²Department of Pathology, Bacteriology, and Avian Diseases, Ghent University, Ghent, Belgium, ³Milk Control Centre Flanders, Lier, Belgium

73. Effect of clinical mastitis on conception rate before and after mastitis occurrence in Holstein dairy cows

Mehran Farhoudi*¹, Mohammad Shams², Davoud Naseri³, Bahram Salasel¹, Orang Ataee¹

¹Department of Clinical Sciences, Faculty of Veterinary Medicine, Karaj Branch, Islamic Azad University, Karaj, Iran, ²Graduated from Faculty of Veterinary Medicine, Karaj Branch, Islamic Azad University, Karaj, Iran, ³Private General Practitioner, Ghazvin, Iran

74. Evaluation of electrical conductivity (EC) measurement for detection of subclinical mastitis

Martina Baumgartner, Kathrin Hecker, Vera Adams, Thomas Wittek

Clinic for Ruminants, University of Veterinary Medicine, Vienna, Austria

75. Germicidal activity of a new teat disinfectant containing copper

Juan Kruze*, Alejandra Ganga, Fernando Ulloa, Armin Mella

Universidad Austral de Chile, Valdivia, Chile

76. Use of mass spectrometry for rapid identification of pathogens causing subclinical mastitis

*Patrícia A. C. Braga¹, Juliana R. Barreiro², Christina R. Ferreira¹, Juliano L. Gonçalves², Tiago Tomazi², Daniele C. Beuron², Marcos N. Eberlin¹, Marcos V. dos Santos^{*2}*

¹University of Campinas, Campinas, SP, Brazil, ²University of São Paulo, Pirassununga, SP, Brazil

77. Efficiency of sanitizing agents against *Prototheca* species isolated from bovine subclinical mastitis

Juliano L. Gonçalves, Sarah H. I. Lee, Eurico de P. Arruda, Débora P. Galles, Vinícius C. Caetano, Cristina S. Cortinhas, Carlos A. F. Oliveira, Andrezza M. Fernandes, Marcos V. dos Santos*

University of São Paulo, Pirassununga, SP, Brazil

78. Biofilm-producing ability of *Prototheca* species isolated from bovine sub-clinical mastitis

Juliano L. Gonçalves, Sarah H. I. Lee, Eurico de P. Arruda, Débora P. Galles, Vinícius C. Caetano, Carlos A. F. Oliveira, Andrezza M. Fernandes, Marcos V. dos Santos*

University of São Paulo, Pirassununga, SP, Brazil

79. Economic assessment of an on-farm culture system used in a selective dry cow therapy program

Marguerite Cameron, Greg Keefe¹, Jean-Philippe Roy², Reuben Domike¹, Ian Dohoo¹*

¹University of Prince Edward Island, Charlottetown, Prince Edward Island, Canada, ²Université de Montréal, Saint Hyacinthe, Quebec, Canada

80. CellCheck: a collaborative approach to milk quality in Ireland

Finola McCoy, Joe O' Flaherty, Karol Harvey*

Animal Health Ireland, Carrick-on-Shannon, Co. Leitrim, Ireland

81. Interdependence of quarters towards intramammary infection with coagulase negative staphylococci during the dry period and the effect of internal teat sealants

Marguerite Cameron, Greg Keefe¹, Jean-Philippe Roy², Ian Dohoo¹*

¹University of Prince Edward Island, Charlottetown, Prince Edward Island, Canada, ²Université de Montréal, Saint Hyacinthe, Quebec, Canada

82. Evaluation of cow-level selective dry cow therapy based on diagnosis by milk leucocyte differential

Mitchell Hockett, Martha Payne¹, Rudy Rodriguez^{1,2}*

¹Advanced Animal Diagnostics, Morrisville, North Carolina, USA, ²North Carolina State University, Raleigh, North Carolina, USA

83. Milk leucocyte differential diagnosis as a tool to guide quarter-level, selective dry cow therapy

Mitchell Hockett, Martha Payne¹, Rudy Rodriguez^{1,2}*

¹Advanced Animal Diagnostics, Morrisville, North Carolina, USA, ²North Carolina State University, Raleigh, North Carolina, USA

Program Committee

Herman Barkema - Barkema@ucalgary.ca – University of Calgary, Canada

Sarne De Vlieghe - Sarne.Devlieghe@UGent.be – Ghent University, Belgium

Larry Fox - Fox@vetmed.wsu.edu – Washington State University, US

Theo Lam - T.Lam@gddeventer.com – Animal Health Service and Utrecht University, The Netherlands

John Middleton - MiddletonJr@missouri.edu – University of Missouri, US

Pieter Passchyn - Pieter.Passchyn@telenet.be – Independent Dairy Consultant, Milk@vice and Ghent University, Belgium

Sofie Piepers - Sofie.Piepers@UGent.be – Ghent University, Belgium

Ynte Hein Schukken - Yschukken@cornell.edu – Animal Health Service, The Netherlands and Cornell University, US

NMC Board of Directors and Staff 2014-2015

Board of Directors:

Kevin Anderson

North Carolina State University
1060 William Moore Drive
Raleigh, NC 27607
Phone: 919-513-6245
Email: kevin_anderson@ncsu.edu

Joe Gillespie

Gillespie Veterinary Service
PO Box 545
McCook, NE 69001
Phone: 308-345-6978
Email: jcgdvm@gmail.com

Patrick Christian

Christian Hill Dairy
580 N German St
Mayville, WI 53050
Phone: 920-517-5028
Email: patrick.christian79@gmail.com

Sandra Godden (2nd Vice President)

University of Minnesota
1365 Gortner Ave
St. Paul, MN 55108
Phone: 612-625-8177
Email: godde002@umn.edu

Sarne De Vlieghe (Treasurer)

Ghent University
Salisburylaan 133
Merebeke, Oost-Vlaanderen 9820
Belgium
Phone: +32-9-264-75-45
Email: sarne.devlieghe@UGent.be

Jason Lombard (advisory member)

USDA:APHIS:VS:CEAH
2150 Centre Ave Bldg B
Ft. Collins, CO 80526
Phone: 970-494-7245
Email: jason.e.lombard@aphis.usda.gov

Ron Erskine

Michigan State University
Dept. of Large Animal Clinical Sciences
D-202 VMC
E. Lansing, MI 48824
Phone: 517-353-4637
Email: erskine@cvm.msu.edu

Mario Lopez (Secretary)

Delaval, Inc.
11100 N. Congress Ave.
Kansas City, MO 64153
Phone: 816-891-1677
Email: mario.lopez@delaval.com

John Middleton (President)*
University of Missouri College of Veterinary
Medicine
A310 Clydesdale Hall
900 East Campus Drive
Columbia, MO 65211
Phone: 573-882-6857
Email: middletonjr@missouri.edu

Gary Neubauer (1st Vice President)*
Zoetis
45 Woodland Dr
New Ulm, MN 56073 USA
Phone: 507-359-5750
Email: gary.d.neubauer@zoetis.com

Ian Ohnstad
The Dairy Group
New Agriculture House
Blackbrook Park Avenue
Taunton, Somerset, United Kingdom
Phone: +44 1300 341138
Email: ian.ohnstad@thedairygroup.co.uk

Christina Petersson-Wolfe
Virginia Tech
2160 Litton-Reaves Hall
Blacksburg, VA 24061
Phone: 540-231-4767
Email: cspw@vt.edu

Gina Pighetti
University of Tennessee
240 Brehm Animal Science
2506 River Drive
Knoxville, TN 37996-4574
Phone: 865-974-7225
Email: pighetti@utk.edu

**David Reid
(Immediate Past President)***
Rocky Ridge Dairy Consulting
P.O. Box 187
Hazel Green, WI 53811
Phone: 608-854-2243
Email: dreiddvm@gmail.com

Bruce Tonkin
United Dairymen of Arizona
2601 S. Hardy Drive
Tempe, AZ 85282
Phone: 480-966-7211
Email: bttonkin@aol.com

Staff:

**Anne Saeman
(Executive Director)***
National Mastitis Council
421 S. Nine Mound Rd.
Verona, WI 53593
Phone: 608-848-4615
Email: anne@nmconline.org

** indicates Executive Committee member*



JOIN A GLOBAL MOVEMENT



Are you **passionate** about milk quality?

Devoted to the dairy industry?

Seeking current information
on milking management?

The **National Mastitis Council** welcomes you!
Join more than 1,400 members worldwide devoted
to reducing mastitis and enhancing milk quality.
NMC is a professional organization that promotes
research and provides information on udder health,
milking management, milk quality, and milk safety to
the dairy industry.

Become an NMC member today!
Visit www.nmconline.org.

NATIONAL MASTITIS COUNCIL

421 S. NINE MOUND RD. • VERONA, WI 53083 USA
PHONE: (608) 848-4615 • FAX: (608) 848-4671
EMAIL: NMC@NMCONLINE.ORG



WHAT DOES NMC DO?

- Provides a forum for the international exchange of mastitis control and milk quality information
- Develops educational materials on udder health, milking management and milk quality
- Establishes guidelines for mastitis control methods
- Monitors changes in technology relating to udder health and milk quality
- Holds meetings and provides continuing education opportunities



NMC

A global organization
for mastitis control
and milk quality

Platinum sponsors



Gold sponsors



Silver sponsors



Bronze sponsor

Test With Confidence™



Partner



Conference reception sponsors

Test With Confidence™



Industry lunch fora partners



Industry seminars partners



Short course partners

