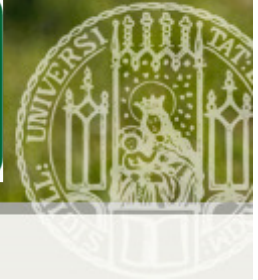
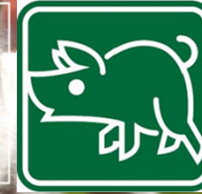




LUDWIG-
MAXIMILIANS-
UNIVERSITÄT
MÜNCHEN

TIERÄRZTLICHE FAKULTÄT
ZENTRUM FÜR KLINISCHE TIERMEDIZIN
KLINIK FÜR SCHWEINE



Übersicht aus den aktuellen Arbeiten von den internationalen Schweinekongressen

M. Ritzmann
Klinik für Schweine
Ludwig-Maximilians-Universität München

relevante Kongresse 2024

Proceedings of the 55th AASV Annual Meeting

February 24-27, 2024
Nashville, Tennessee



27th International Pig
Veterinary Society Congress

15th European Symposium of
Porcine Health Management



IPVS & ESPHM

JUNE 4-7, 2024 LEIPZIG, GERMANY

www.ipvs2024.com



relevante Kongresse 2024

- 207 Vorträge
(inkl. Postervorstellung)
- 798 Poster
- Themenblöcke Vorträge:

ORAL PRESENTATIONS

Virology and Viral Diseases (VVD-OP-01 / VVD-OP-13)
One Health: Veterinary Public Health and Sustainable Pig Production
Reproduction (REP-OP-01 / REP-OP-13)
Resident Session (RES-OP-01 / RES-OP-05)
Parasitology and Parasitic Diseases (PAR-OP-01 / PAR-OP-04)
Clinical Club (OCC-OP-01 / OCC-OP-04)
Bacteriology and Bacterial Diseases (BBD-OP-01 / BBD-OP-13)
Herd Health Management (HHM-OP-01 / HHM-OP-13)
Nutrition (NUTR-OP-01 / NUTR-OP-13)
Immunology and Vaccinology (IMM-OP-01 / IMM-OP-09)
Animal Welfare and Ethology (WEL-OP-01 / WEL-OP-05)
Precision Livestock Farming (PLF-OP-01 / PLF-OP-05)

27th International Pig
Veterinary Society Congress

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*Leading
AASV*

*into the
Future*

AMERICAN ASSOCIATION
OF SWINE VETERINARIANS

aasv.org/annmtg


* Photo courtesy of the National Pork Board, Des Moines, Iowa, USA

- 109 Vorträge
 - davon 49 Industrievorträge
- 58 Poster
 - davon 17 Industrieposter
- zusätzlich 10 Seminare

relevante Kongresse 2024

**Proceedings of the 55th
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AMERICAN ASSOCIATION
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aasv.org/annmtg

* Photo courtesy of the National Pork Board, Des Moines, Iowa, USA

- Schwerpunkt Erreger:

- PRRSV

- Lawsonien

- Mycoplasmen

- Schwerpunkt Themen:

- Biosicherheit

- Elimination

- Impfstoffe

- „globale Sicht“

Globaler Handel

- Steigerung der Exporte aus den USA und aus Brasilien
- Reduktion der Exporte aus der EU

<https://doi.org/10.54846/am2024/163>

The international consumer is key to the future of the US pork industry

Erin Borrer
US Meat Export Federation

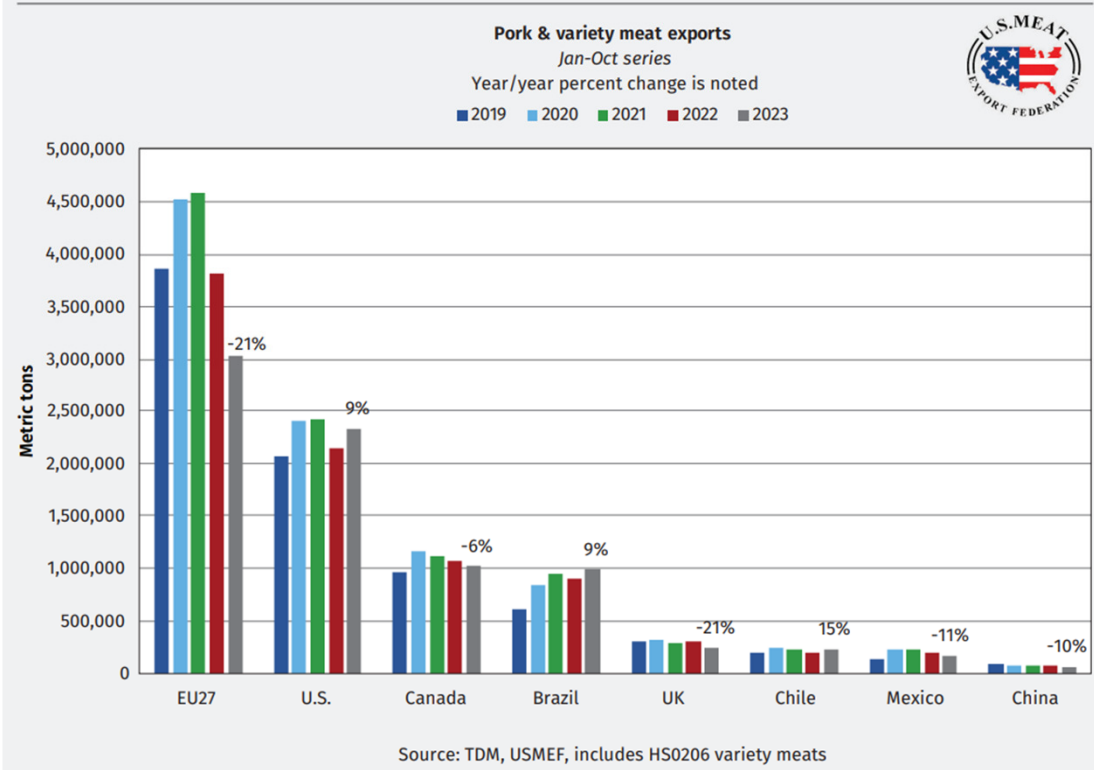
<https://doi.org/10.54846/am2024/164>

Driving demand: What the Pork Checkoff is doing with your money. What you need to do.

Bill Even
CEO, National Pork Board

Expanding international market development with the US meat export federation (USMEF)

Figure 5: Global pork exports down 7% in Jan-Oct, totaling 8.075 million metric tons, but strong 9% rebound in US exports.



Globaler Handel

- Hauptimporteur ist China

Protecting the product: How I work with my packer

<https://doi.org/10.54846/am2024/166>

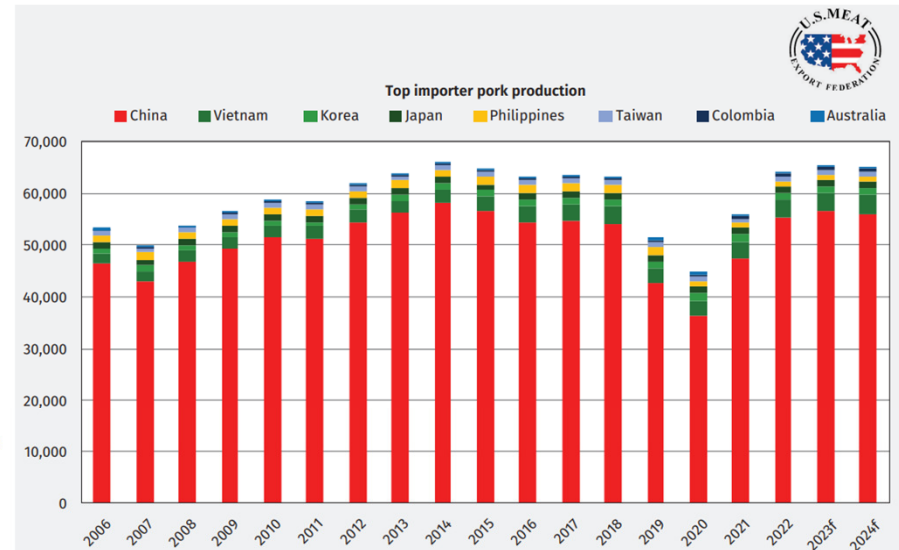
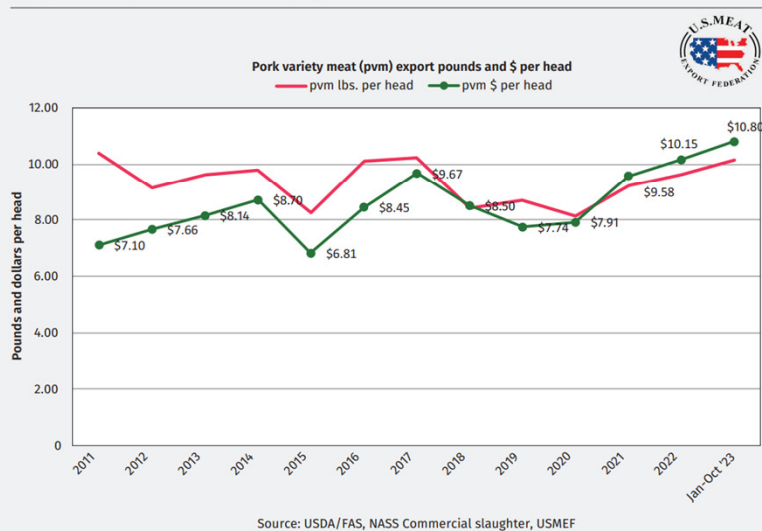
D. Murray, DVM
New Fashion Pork, Jackson, Minnesota

Protecting the product: Are your clients participating in price protection?

<https://doi.org/10.54846/am2024/165>

D. Baker

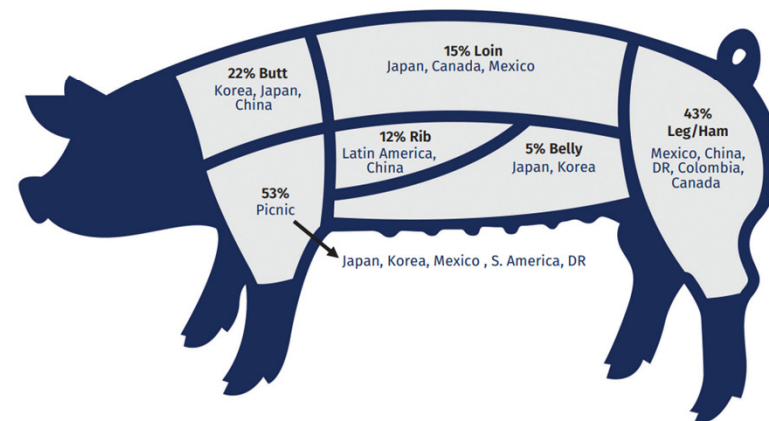
Figure 3: Pork variety meat exports are on a record pace.



2023 Jan-Oct:

- 39.36 lbs. per head exported, 25% of production
- At average of \$52 per head
- Pork/pvm export averaged \$62.79/head, which was 36% of the hog value of \$172.58 and 33% of the per head cutout value of \$191.54

Source: USMEF calculations using NASS Commercial hog slaughter, AMS hog and pork cutout values, FAS export data



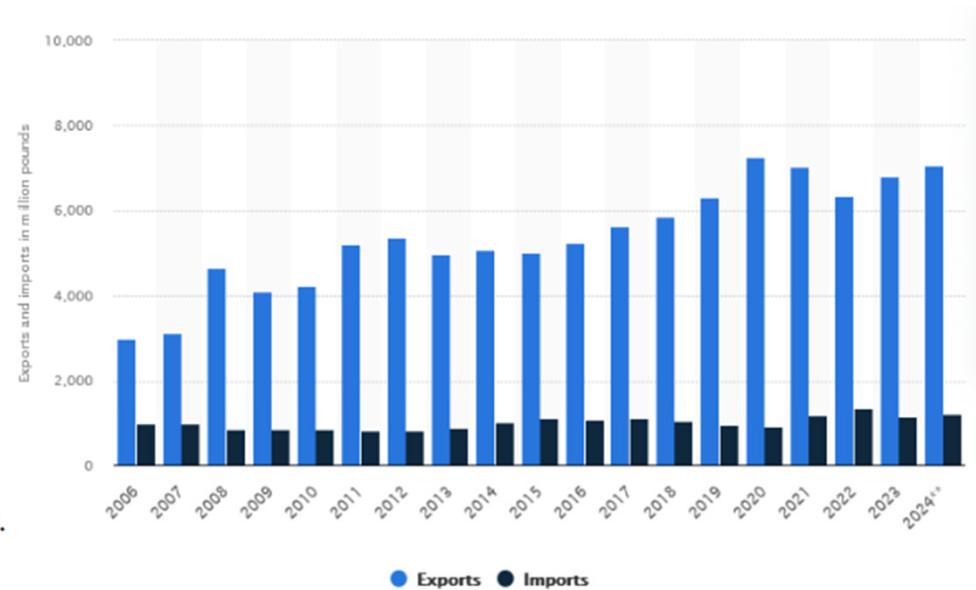
Source: USMEF 2022 estimates for export volume as a share of total U.S. pork primal production

Globaler Handel – Produktion in den USA

- Produktion in USA:
- 30% Export
- 70% nationaler Markt

Increasing volume and value of US pork domestically

Approximately 70% of total US pork stays in the domestic market.



<https://doi.org/10.54846/am2024/167>

Protecting the product: A swine vet's job isn't done when the pig is loaded on the truck

Grace E. Houston, DVM, PhD
Triumph Foods LLC, Saint Joseph, Missouri

Protecting demand for US pork by preventing animal diseases

Produktion in den USA

- Relevanz und Zukunft der tierärztlichen Betreuung

Alex Hogg Memorial Lecture

<https://doi.org/10.54846/am2024/1>

Next Generation Swine Veterinarians: Who are we and where are we going?

Joel Nerem, DVM
Pipestone Veterinary Services, Pipestone, Minnesota

Past, present, and future challenges for the swine veterinary profession

Tools of the future for veterinary practitioners

Chris J. Rademacher, DVM

Produktion in den USA

- Relevanz und Zukunft der tierärztlichen Betreuung

Welfare

Like health, pig welfare fits squarely in the wheelhouse of the swine vet.⁶ We should be the champions of swine well-being. We took an oath. It should be our passion. And while improving pig health is the single biggest way we can improve pig welfare, there are other priorities we should focus on. Some thoughts on swine welfare include:

- **Improving animal welfare should improve pig performance.** Therefore, we should embrace the topic and continually seek to improve it.
- **The public (our customers) view animal welfare as a high priority.** They even approve ballot initiatives that they think improve pig welfare, even when they do not. While some of these initiatives may be misguided, veterinarians have the responsibility (and opportunity) to ensure that the pig's welfare is improved as new requirements and production practices are applied.
- **Never walk past an issue.** Always embrace it as a teaching opportunity for caregivers and a way to make a pig's life better.
- **Who are your swine welfare experts?** Are you collaborating with them? Are we innovating in this space? I have had the privilege to work with several champions of swine welfare in my career: Dr. Angela Baysinger, Dr. Carissa Odland, and Dr. Cara Haden. Who is on your animal welfare expert panel list? How are they helping to improve animal welfare on your farms?

Focus on the pig

Health

Improving health is the greatest impact veterinarians can have on the pig (and the farmer's farm). It is at the center of our wheelhouse. If we are not focusing on health, we should probably not call ourselves veterinarians. By improving the health of pigs, we have a tremendous impact on animal well-being and the farm's profitability. Health should be our number one priority. Improving it is the right thing to do. While developing disease prevention and elimination strategies, vaccination schedules, diagnosing disease, and prescribing appropriate treatments are all critically important, to take the US swine herd's health to the next level, we need to do some things differently:

1. **Better understand the cost of disease**
2. **Implement Next Generation Biosecurity**
3. **Better farm and production system design**
4. **Disease elimination**

Biosicherheit

USA:

- auch in USA heterogene Betriebsstrukturen
- Fokus der Früherkennung und Biosicherheitsmaßnahmen auf PRRS

A mixed method study of beliefs, behaviors and practices of farm biosecurity in the US swine industry

M. C. Chepkwony¹, DVM, MVPH; D. N. Makau², DVM, MVEE, PhD; C. Yoder^{1,2}, DVM, MS; M. Culhane², DVM, PhD; M. S. P. Aguirreburualde¹, DVM, PhD; A. M. Perez¹, DVM, PhD; C. A. Corzo², DVM, MS, PhD; Michael Mahero^{1,3}, DVM, MPH, PhD
¹Center for Animal Health and Food Safety, University of Minnesota; ²Department of Veterinary Population Medicine, College of Veterinary Medicine, University of Minnesota, Minnesota; ³Department of Biomedical and Diagnostic Sciences, College of Veterinary Medicine, University of Tennessee Institute of Agriculture, Knoxville, Tennessee

Characterization of farming, management, biosecurity, and marketing practices of alternative pig farms in Minnesota

M. B. Medrano, DVM, MPH; M. R. Culhane, DVM, PhD; C. A. Corzo, DVM, MS, PhD
Department of Veterinary Population Medicine, College of Veterinary Medicine, University of Minnesota, Saint Paul, Minnesota

Development and implementation of an early warning tool for disease occurrence in the US swine breeding herd population

X. Yue, PhD; M. Kikuti, PhD; C. M. Mellini, DVM; C. A. Corzo, DVM, PhD
Dept. of Veterinary Population Medicine, University of Minnesota, Saint Paul, Minnesota

<https://doi.org/10.54846/am2024/143>

The Zombie Apocalypse approach to biosecurity, biocontainment, and disease control and elimination

Luc Dufresne, DVM

Biosicherheit

MAPPING BIOSECURITY LEGISLATION IN THE INTENSIVE PIG PRODUCTION ACROSS EUROPE

Europa:

E. Biebaut¹, M. Stukelj², T. Pina Nunes³, V. Nedosekov⁴, C. Correia Gomes⁵, B. Mehmedi⁶, I. Corrége⁷, L. ózsvári⁸, L. Svennesen⁹, E. Bernaerdt¹⁰, I. Toppari¹¹, L. Gresakova¹², C. Romanelli¹³, M.E. Filippitzi¹⁴, M. Siv¹⁵, B. Angjelovski¹⁶, S. Küker¹⁷, A. Allepuz¹⁸, A. Viltrop¹⁹, M. Didara²⁰, M. Nikolic²¹, E. Vink²², I. Chantziaras¹, L. Dahlin²⁴, M. De Nardi²⁵, T. Nicolaisen²³, J. Prodanov-Radulovic²⁶

- große Unterschiede zwischen den Ländern
- Fokus eher externe Biosicherheit als interne Biosicherheit

WHAT ARE THE EXTERNAL BIOSECURITY MEASURES IN FRENCH OUTDOOR PIG FARMS?

Frankreich:

M. Delsart¹, N. Rose², B. Dufour¹, E. Boudin², V. Dorenlor², F. Eono², E. Eveno², S. Kerphérique², G. Poulain², M. Souquière², F. Pól³, C. Fablet²

¹Anses, École Nationale Vétérinaire d'Alfort, Laboratoire de Santé Animale USC EPIMAI, 94700 Maisons-Alfort, France

²Anses Ploufragan-Plouzané-Niort, Unité Épidémiologie, Santé et Bien-Être, 22440 Ploufragan, France

³ONIRIS, 101 Rte de Gachet, 44300 Nantes, France

- 59% der Freilandbetriebe erfüllen nicht die gesetzlichen Grundlagen

BIOSECURITY IN PIG FARMS OVER TIME IN IRELAND

Irland:

C. Correia-Gomes¹

¹Animal Health Ireland, 2–5 The Archways, Carrick on Shannon, Co. Leitrim, Ireland N41 WN27

- Verbesserungen seit 2018 erkennbar

Biosicherheit

ASSESSMENT OF CLEANING AND DISINFECTION PRACTICES ON PIG FARMS ACROSS TEN EUROPEAN COUNTRIES

I. Makovska¹, I. Chantziaras¹, N. Caekebeke², P. Dhaka³, J. Dewulf¹

¹*Veterinary Epidemiology Unit, Department of Internal medicine, Reproduction and Population medicine, Faculty of Veterinary Medicine, Ghent University, Salisburyaan 133,9820 Merelbeke, Belgium*

²*Biocheck.Gent BV, Belgium*

³*Centre for One Health, College of Veterinary Science, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana 141004, India*

Europa:

- Biocheck.UGent

(<https://biocheckgent.com>)

- Auswertung von 14.236 Betrieben in 10 EU Ländern

- 65% führen „ordnungsgemäße“ R+D durch

EFFECTIVENESS OF CLEANING AND DISINFECTION PROTOCOLS ON PIG FARMS IN NORTHERN-BELGIUM.

T. Vandersmissen¹, C. Bonckaert¹, C. Brossé¹, C. Rigauts¹

¹*DGZ Vlaanderen, Hagenbroeksesteenweg 167, 2500 Lier, Belgium*

Belgien:

- Defizite in R+D insb. in Abferkelabteilen

Elimination

national erfolgreiche Eradikationen:

- KSP
- Aujeszky'sche Krankheit

global/national bislang kaum erfolgreich:

- PED
- PRRSV
- M. hyopneumoniae (außer Schweiz)
- **ASP**

<https://doi.org/10.54846/am2024/140>

Eradication of classical swine fever and pseudorabies viruses in the United States ... what worked and why?

Jeff Zimmerman, DVM, PhD

Department of Veterinary Diagnostic and Production Animal Medicine, Iowa State University, Ames, Iowa

Reasons for success?

CSFV and PRV eradication were successful because of:

1. Strong, long-term industry support and an effective Federal-State-Industry collaboration.
2. A substantial scientific understanding of the natural histories of CSFV and PRV.
3. The availability of diagnostically sensitive and diagnostically specific tests. In the case of PRV, the crucial role of highly effective DIVA vaccines and antibody ELISAs cannot be exaggerated.
4. Willingness to apply new concepts. Representative sampling was accepted and integrated into the PRV program and the "whole herd" sampling used in the CSFV program abandoned as impractical and unnecessary.

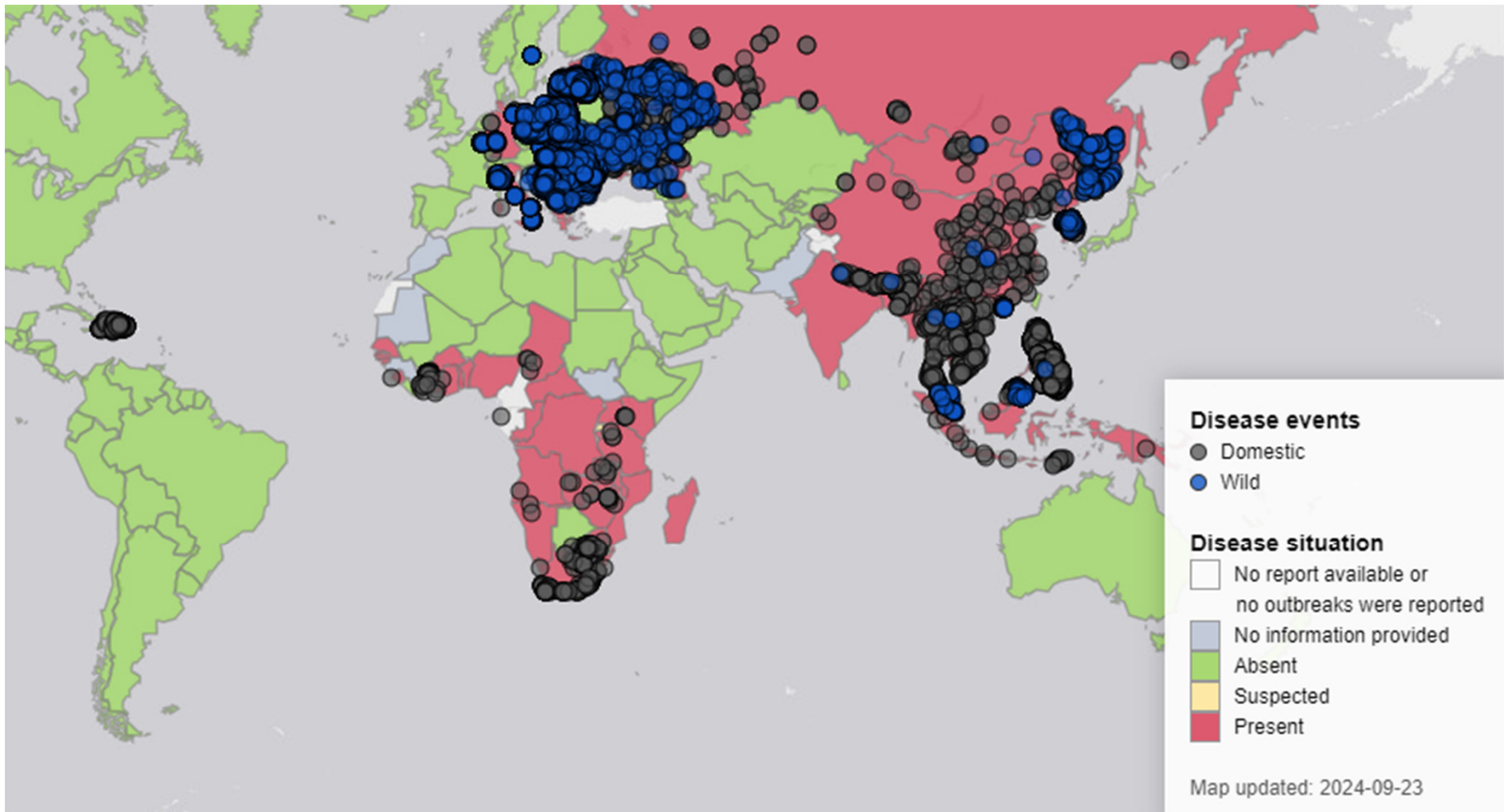
<https://doi.org/10.54846/am2024/145>

Pseudorabies virus elimination versus porcine epidemic diarrhea virus elimination: We did it before, why not do it again?

L. Tokach, DVM, DAVBP; M. Potter, DVM, PhD
Abilene Animal Hospital, Pennsylvania, Abilene, Kansas

ASP

Ausbrüche seit 2018:



EFSA, 23.09.24

ASP

Eintragsquellen:

- Personen
- Offenstallungen
- Speiseabfälle
- Fahrzeuge/Tiere
- in Asien Fliegen?

MANAGEMENT AFTER ASF OUTBREAK IN A FINISHER FARM: A REAL STORY

P. Poolperm¹, N. Phetphloy²

¹Professional Training and Consultant, Co.LTD., Thailand

²Porq Co.,LTD. Bangkok, Thailand

ASSESSMENT OF RISK FACTORS FOR SPREADING OF AFRICAN SWINE FEVER IN BACKYARD PIG HOLDINGS IN THE BELGRADE CITY AREA

B. Kureljušić¹, B. Savić¹, B. Milovanović¹, N. Jezdimirović¹, D. Glišić², J. Prodanov Radulović³, V. Milićević¹

¹Scientific Institute of Veterinary Medicine of Serbia, Belgrade, Serbia

²Institute of Veterinary Medicine of Serbia, Janisa Janulisa 14, 11000 Belgrade, Serbia

³Scientific Veterinary Institute "Novi Sad", Serbia

AFRICAN SWINE FEVER: SUCCESSFUL KEYS TOWARDS ASF PREVENTION AND CONTROL

A. Boonsoongnern¹, P. Boonsoongnern¹, Y. Woonwong¹, N. Thanantong¹, T. Kaminsonsakul¹, S. Phuttapatimok¹, N. Rattanavanichrojn¹, P. Poolperm¹, P. Jirawattanapong¹

¹Faculty of Veterinary Medicine, Kasetsart University, Bangkok, Thailand, 10900

RISK FACTORS ASSOCIATED WITH SPREAD OF AFRICAN SWINE FEVER VIRUS IN SMALL- AND MEDIUM-SCALE FARMS IN THE WESTERN REGION OF THAILAND

N. Am-In¹, P. Photiphat², S. Malicharn², T. Bangkeaw², B. Sorrasittsuksakul², S. Nuanualsuwan³, D. Nilubol⁴

¹Center of Excellence in Swine Reproduction, Department of Obstetrics, Gynaecology and Reproduction, Faculty of Veterinary Science, Chulalongkorn University, Thailand

²Ratchaburi Provincial Livestock Office, Ratchaburi, Thailand

³Center of Excellence for Food and Water Risk Analysis (FAWRA), Department of Veterinary Public Health, Faculty of Veterinary Science, Chulalongkorn University, Bangkok, Thailand

⁴Swine Viral Evolution and Vaccine Development Research Unit, Department of Veterinary Microbiology, Faculty of Veterinary Science, Chulalongkorn University, Thailand

ASP-Risikoampel ASF PREVENTION: WEB-BASED TOOL TO ASSESS RISK FOR ASF INTRODUCTION IN PIG FARMS WITH OUTDOOR HOUSING

B. Grabkowsky¹, M. Gellermann¹, F.J. Conraths², N. Denzin², C. Sauter-Louis², M. Martin³

¹Center of sustainability transformation in areas of intensive agriculture | University of Vechta, Germany

²Friedrich-Loeffler-Institut, Greifswald - Insel Riems, Germany

³Comissioner for Animal Welfare, Ministry for the Environment, Climate, Agriculture and Consumer Protection Hesse, Wiesbaden, Germany

ASP

ASSESSMENT OF VIREMIA, ANTIBODY RESPONSE, SURVIVAL RATES, SHEDDING TO SENTINELS AND PERSISTENT INFECTION OF PIGS FOLLOWING NATURAL FIELD AFRICAN SWINE FEVER VIRUS EXPOSURE

Asien:

D. Venkateswaran ¹, S. Muhammad ¹, R. Suntisukwattana ¹, W. Atthaapa ¹, P. Jermutjarit ¹, P. Watcharavongtip ¹, D. Nilubol ¹

¹*Department of Veterinary Microbiology, Faculty of Veterinary Science, Chulalongkorn University, Bangkok, Thailand*

- persistente Infektionen nachgewiesen (mind. 19 Wochen p.i.)

FACING THE CHALLENGES OF ENDEMIC AFRICAN SWINE FEVER IN VIETNAM

Vietnam:

C.D. Lai ¹, T.N.T. Ngo ², T.D. Do ²

¹*Nebraska Center for Virology, University of Nebraska-Lincoln, Lincoln, NE 68583, USA*

²*Faculty of Animal Science and Veterinary Medicine, Nong Lam University, HCMC, Thu Duc city, Ho Chi Minh city, Vietnam*

- endemische Regionen
- teilweise „andere“ klinische Anzeichen: Mastitis, Arthritis

SURVEILLANCE FOR DETECTION OF ASFV IN PIG FARM: INVASIVE VERSUS NON-INVASIVE SAMPLING

Diagnostik:

S. Hong ¹, K. Cho ¹, H. Kang ¹, Y. Kim ¹

¹*Foreign animal disease division, Animal and Plant Quarantine Agency, South Korea*

- Umgebungsproben für Diagnostik/Überwachung kaum geeignet
- Lymphknotenbiopate gut geeignet

ASP

Keynote lectures
PROF. HUA-JI QIU

Session: Virology and viral diseases
Lecture: **New technologies applied to vaccine development:
what can we expect?**

Impfstoffe in Asien:

- Lebend-Impfstoff gegen ASP im Juni 2022 in Vietnam zugelassen
- zunächst ungeklärte Todesfälle nach der Impfung
- Impfstoff im August 2022 zurückgezogen
- Impfstoff seit Oktober 2022 in Vietnam wieder zugelassen

- bis Anfang September 2024 insgesamt 2,6 Millionen Schweine geimpft
- Vakzination auch auf den Philippinen

GENERATION AND EVALUATION OF CELL-ADAPTED VACCINE CANDIDATE AGAINST AFRICAN SWINE FEVER VIRUS

H. Kwon ¹, M. Kim ¹, J. Cha ², Y. Kim ³, J.Y. Lee ¹, I. Yoon ¹, W. Jeong ³, I. Mo ⁴, S. Yoo ¹, L. Jong-Soo ²

¹ChoongAng Vaccine Laboratories Co., Ltd, Daejeon, 34055, Republic of Korea

²College of Veterinary Medicine, Chungnam National University, Daejeon, Republic of Korea

³National Wildlife Disease Control Institute, Gwangju, 58131, Republic of Korea

⁴Avinext, Cheongju, 28382, Republic of Korea



Trade name: **NAVET-ASFVAC**
❖ ASFV-G-ΔI177L Strain
❖ Cell line: PBMC
❖ Virus titer $\geq 10^{2.6}$ HAD₅₀/dose
❖ Animals: Pig 8 weeks of age



Trade name: **AVAC ASF Live**
❖ ASFV-G-ΔMGF Strain
❖ Cell line: DMAC
❖ Virus titer $\geq 10^{3.5}$ HAD₅₀/dose
❖ Animals: Pig 4 weeks of age



Trade name: **DACOVAC ASF2**
❖ ASFV-G-ΔI177L/ΔLVR Strain
❖ Cell line: PIPEC
❖ Virus titer $\geq 10^{3.0}$ HAD₅₀/dose
❖ Animals: Pig 4 weeks of age

Long, 2023

Elimination

national erfolgreiche

Eradikationen:

- KSP
- Aujeszky'sche Krankheit

**global/national bislang kaum
erfolgreich:**

- PED
- PRRSV
- *M. hyopneumoniae*
- ASP

4. Disease elimination

We continue to live with swine diseases in the US that can be eliminated.¹ Occasionally we add some to the list. Rarely, do we ever remove one from the list. It's time to start getting rid of some:

- **Farm by farm:** Lots of pathogens can be eliminated at the sow farm without needing depopulation and repopulations. PRRS, *Mycoplasma hyopneumoniae*, and the enteric coronaviruses (PEDV, TGEV, etc) come to mind. If we are reluctant to eliminate these costly pathogens from breeding herds, then, likely, we haven't implemented the correct biosecurity to prevent reintroduction, or our farm is in the wrong location.
- **National disease elimination:** I don't think we are ready to eliminate PRRS nationally, but we do have the tools, strategies, and expertise to eliminate *Mycoplasma hyopneumoniae* and the enteric coronaviruses. What we lack is the will to do it. I think it is time to take some diseases off the national list and these are where I think we should start. We are starting to organize as an industry to see such bold goals possible. The US Swine Health Improvement Plan (SHIP) could be an avenue for this effort.

Elimination

national erfolgreiche

Eradikationen:

- KSP
- Aujeszky'sche Krankheit

**global/national bislang kaum
erfolgreich:**

- PED
- PRRSV
- *M. hyopneumoniae*
- ASP

Area control programs

Individual herd elimination plans have been successful for extended periods of time, even in relatively pig dense areas. The addition of filtration to many herds has also reduced the likelihood of area spread to these herds. Herds that have started as negative or have been through depopulation and repopulation have also had good track records of remaining *M hyopneumoniae* negative. All these cases would lead to only seeing additional benefit in regional control with the remarkable success seen at the level of individual herds, extending these efforts to a regional scale could undoubtedly amplify their effectiveness. Such a strategic approach would not only diminish the incidence of new infections but, considering the identified sources, it also presents a relatively low risk in the present scenario. Regional elimination of *M hyopneumoniae* would reduce the level of new infections without a doubt.

To date, there has been limited activity and focus around *M hyopneumoniae* regional control programs. PRRS area control projects have lost momentum, even though it is still a good idea. The increased number of PRRS regional control failures has made it more difficult to keep these moving forward. I believe this has been a limitation for *M. hyopneumoniae* following the same path, however, I believe that the outcome could be much better based on individual farm experiences. Although it still occurs, area spread of *M hyopneumoniae* is less likely to happen compared to other pathogens, aiding to the success of regional programs and even at a national level.

Elimination

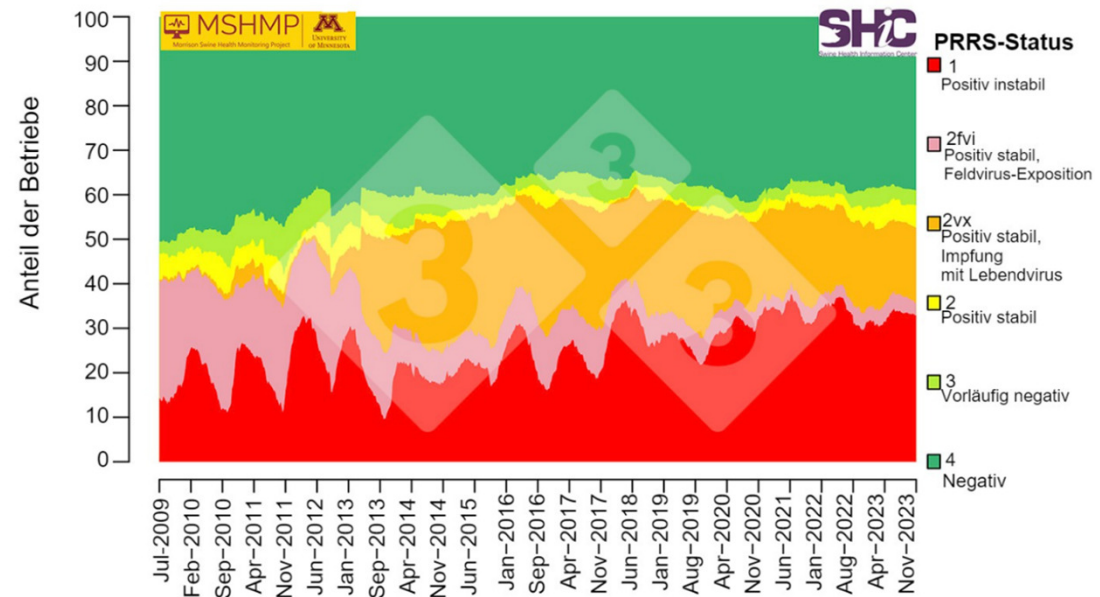
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PRRSV in USA:

- Fokus aktuell weniger auf Elimination als früher
- Schwerpunkt derzeit:
 - Vakzination
 - Biosicherheit
- langfristig:
 - genetische Resistenz
 - Elimination

PRRSV: The NeverEnding Story

A. Maschhoff, DVM, T. Bauman, DVM
The Maschhoffs, LLC, Carlyle Illinois



HOW MANY PRRS OUTBREAKS ARE THERE IN MY REGION? AN EARLY WARNING TOOL FOR DISEASE OCCURRENCE IN THE U.S. BREEDING HERDS

X. Yue¹, M. Kikuti², M. Melini¹, C. Corzo²

¹University of Minnesota

²Veterinary Population Medicine Department, College of Veterinary Medicine, University of Minnesota, St Paul, MN, USA

Elimination



English

PRRSV in Europa:

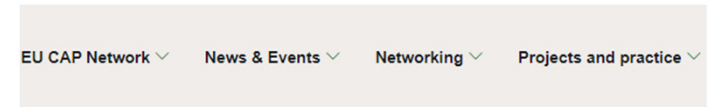
- einzelne Ansätze des Versuchs einer regionalen Elimination
- Fokus zunächst auf Statuserhebung

Tendenz weniger Elimination, eher:

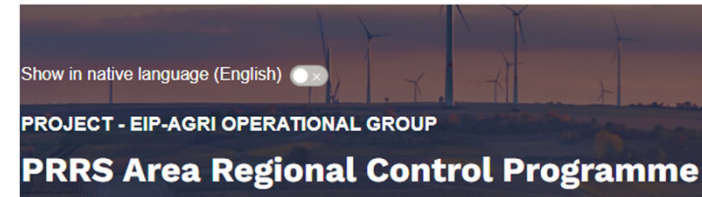
- verbesserte Biosicherheit
- koordinierte Vakzinationsprogramme
- Monitoring

Objectives

The aim of this project is to control the spread of the pig disease, Porcine Reproductive and Respiratory Syndrome (PRRS), in the Cookstown Area through improved biosecurity, a coordinated vaccination programme and enhanced monitoring. PRRS is a viral disease of pigs characterised by two overlapping clinical presentations – reproductive impairment or failure in breeding animals, and respiratory disease in pigs of any age.



Home > EIP-AGRI Project Database > PRRS Area Regional Control Programme



PRRS Area Regional Control Programme

European Innovation Partnership (EIP)

Author: Dr Violet Wylie – violet.wylie@outlook.com
Operational Group: Area Regional Control Group
Timescale of project: 12th November 2020 - 30th June 2023
Date of final report: 11th August



The European Agricultural Fund for Rural Development: Europe Investing in rural areas.



MAPPING THE GEOGRAPHICAL SPREAD OF PORCINE REPRODUCTIVE AND RESPIRATORY SYNDROME VIRUS (PRRSV) IN THE NETHERLANDS

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²Lijneshof Veterinary Practice, Nederweert, The Netherlands

Elimination

<https://doi.org/10.54846/am2024/147>

PRRSV in Europa:

Ungarn:

PRRS eradication of pig herds in Hungary 2014 - 2022

I. Szabó¹, DVM, PhD; I. Nemes¹, DVM; L. Bognár², DVM, PhD; T. Abonyi¹, DVM, PhD; Zs. Terjék¹, DVM; T. Molnár¹, DVM; Á. Bálint³ DVM, PhD

¹National PRRS Eradication Committee, Budapest, Hungary; ²Ministry of Agriculture, Budapest, Hungary; ³Department of Virology, National Food Chain Safety Office Veterinary Diagnostic Directorate, Budapest, Hungary

- staatliches Bekämpfungsprogramm seit 2014

- Backyard farms:** The authority ordered the **depopulation** of the herds with state compensation, but without the need for repopulation.
- Large-scale fattening only units:** At this early stage of eradication, after pigs were transported to slaughter, the premises had to be thoroughly cleaned and disinfected and only PRRSV-free animals were allowed to be used for repopulation.
- Large-scale breeding farms:** Complete freedom to decide whether eradication of the PRRS virus was to be carried out by complete **depopulation-repopulation**, or other methods (herd closure, test and removal, etc). The goal was to find an optimal eradication method tailored to every farm according to their technology, production system and management.

- zu Beginn bereits niedrige Prävalenz (4%)

bei Kleinbetrieben

- „nur“ 470 große Betriebe (Prävalenz 27%)

Table 1: The result of laboratory tests for PRRS carried out in backyard farms

Year	Number of investigated animals	Number of seropositive animals	% of positive/ investigated animals
2012	35253	1650	4.68%
2013	34761	1271	3.66%
2014	42885	1956	4.56%
2015	31744	1082	3.41%
2016	13521	139	1.03%
2017	15582	150	0.96%
2018	13111	147	1.12%
2019	12680	181	1.43%
2020	12264	78	0.64%
2021	9907	15	0.15%
2022	8606	18	0.21%

Elimination

National PRRS reduction programme in Denmark

PRRSV in Europa:

Dänemark:

♥ Food Supply & Safety, Health & Biosecurity

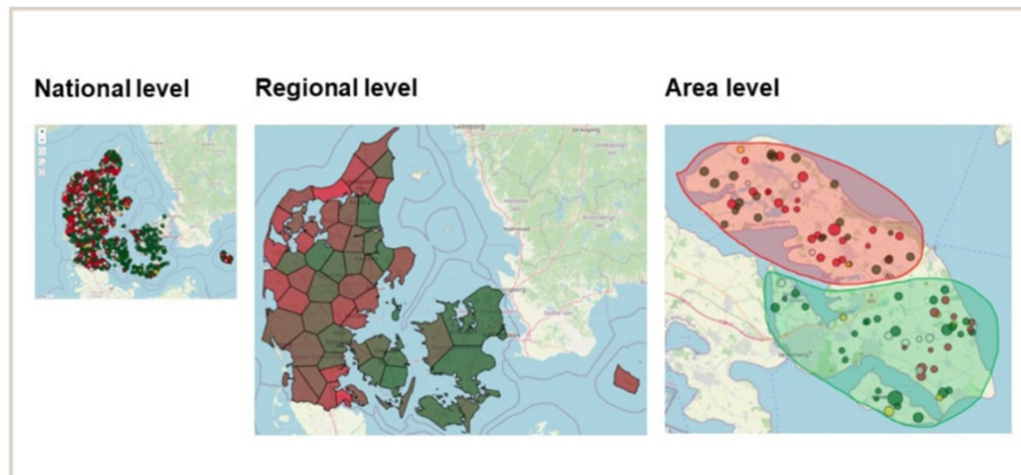


Illustration of the administrative levels in the PRRS strategy. By Danish Agriculture & Food Council.

- insgesamt 4.425 Betriebe in 43 Regionen
- 16 regionale Eradikationsprogramme

danbred, 2023, Weber, 2023, Weber et al., 2024, Fertner, 2024



January 2019



July 2019

Kusk et al., 2020

Elimination

PRRSV in Europa:

Dänemark:

Figure 2: The goals for Denmark's national strategy



FIRST EXPERIENCES OF THE DANISH PRRS REDUCTION STRATEGY

N. Weber ¹, B. Lorenzen ¹, K. Møller ¹

¹Danish Agriculture & Food Council

ONLINE MAP OF PRRS PREVALENCE IN DENMARK – AN INVALUABLE TOOL IN THE NATIONAL REDUCTION STRATEGY

M. Fertner ², O. Helverskov ¹, S. Kjærgaard Boldsen ², B. Lorenzen ³, N. Rosager Weber ³

¹SEGES Innovation P/S, Digital, Agro Food Park 15, DK-8200 Aarhus, Denmark

²SEGES Innovation P/S, Datamanagement, Agro Food Park 15, DK-8200 Aarhus, Denmark

³Danish Agriculture and Food Council, Axeltorv 3, Copenhagen, Denmark

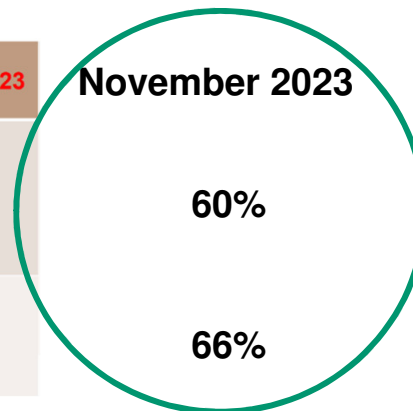
GIS BASED RISKS OF INTRODUCTION OF PRRS, MYCOPLASMA HYOPNEUMONIAE AND ACTINOBACILLUS PLEUROPNEUMONIAE INTO DANISH PIG HERDS

J. Dahl ¹, B. Lorenzen ²

¹Danish Agriculture and Food Council, Axeltorv 3, Copenhagen, Denmark

²Danish Agriculture & Food Council, Aarhus, Denmark

	Starting point 2022	Goals	January 2023
Proportion of finishers declared seronegative for PRRSV at slaughter	25%	75%	46%
Proportion of sow herds declared seronegative for PRRSV	58%	85%	58%



danbred, 2023, Weber, 2023, Weber et al., 2024

Elimination

M. hyopneumoniae in USA:

- seit 15-20 Jahren Ansätze zur
Elimination

<https://doi.org/10.54846/am2024/144>

Mycoplasma hyopneumoniae vs PRRSV elimination differences

M. C. Rahe

Department of Population Health and Pathobiology, North Carolina State University, Raleigh, North Carolina

<https://doi.org/10.54846/am2024/146>

Current trends in *Mycoplasma hyopneumoniae* eradication

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¹Department of Veterinary Population Medicine, College of Veterinary Medicine, University of Minnesota, St. Paul, Minnesota; ²Boehringer Ingelheim Animal Health USA Inc., Duluth, Georgia; ³Veterinary Diagnostic Laboratory, College of Veterinary Medicine, University of Minnesota, St. Paul, Minnesota; ⁴Swine Disease Eradication Center, College of Veterinary Medicine, University of Minnesota, St. Paul, Minnesota;

^{*}Current affiliation: Pipestone Veterinary Services, Pipestone, Minnesota

DEVELOPMENT OF AN ACCESSIBLE, PRACTITIONER-FOCUSED OUTREACH TOOL FOR MYCOPLASMA HYOPNEUMONIAE ERADICATION

A. Sponheim¹, E. Fano², M. Pieters³

¹Department of Veterinary Population Medicine, College of Veterinary Medicine, University of Minnesota, St. Paul, MN, USA; ²Boehringer Ingelheim Animal Health USA Inc., Duluth, GA, USA

³Boehringer Ingelheim Animal Health USA Inc., Duluth, GA, USA; ^{*}Current affiliation: Pipestone Veterinary Services, Pipestone, MN, USA

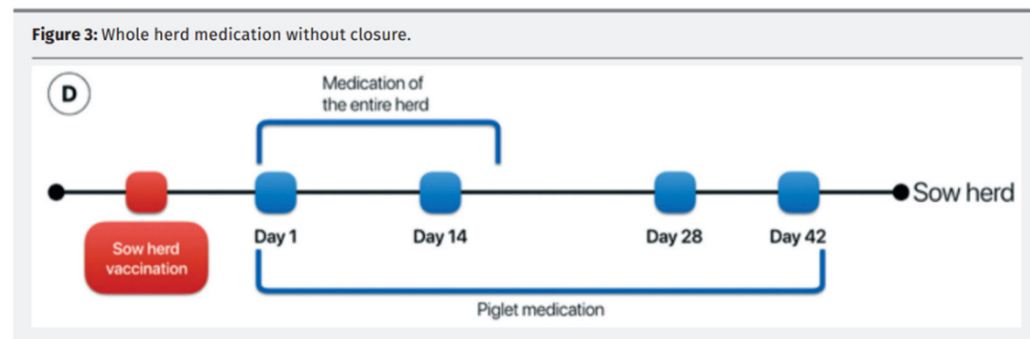
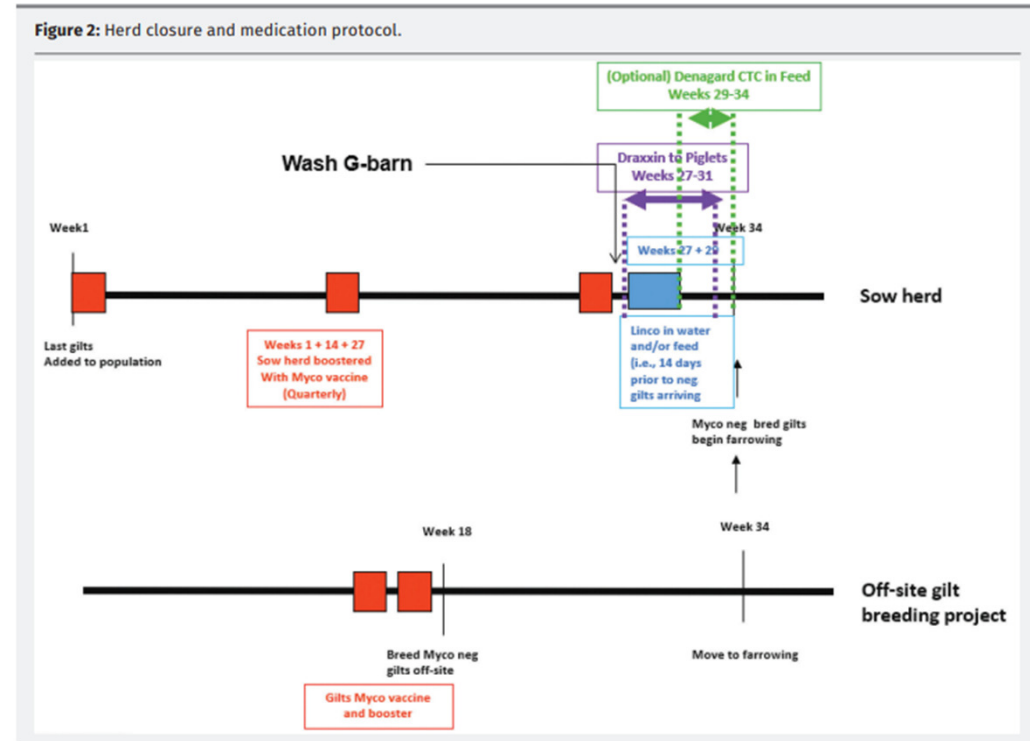
⁴Department of Veterinary Population Medicine, College of Veterinary Medicine, University of Minnesota, St. Paul, MN; ⁵Veterinary Diagnostic Laboratory, College of Veterinary Medicine, University of Minnesota, St. Paul, MN; ⁶Swine Disease Eradication Center,

- **Depopulation and repopulation:** This is the time-tested, quickest method to eliminate *M. hyopneumoniae*, with the greatest likelihood of success, however, it is generally the most expensive.
- **“Swiss” model:** Has been demonstrated to be very effective but requires a partial depopulation of farrowing, requiring the farrowing house to be completely empty for 1 turn followed by removal of all animals less than 10 months of age.
- **Herd closure and whole herd medication:** One of the most popular methods and can be done with minimal effects on production, depending on the facility and management. This method has been used in combination with other pathogen eliminations, predominantly with PRRSV and with PEDV. Herd closure and whole herd medication method has a moderate cost and has a good success rate. This is the method that I have used for most of my and our clinics clients’ eliminations for these reasons. Herd closure and whole herd medication program is detailed in Figure 2 and the long-term success rate of this method in comparison to other methods are shown in Table 1.
- **Whole herd medication without closure:** This method allows for rapid return to negative status but has more cost due to medication programs (there are multiple different ones that have been used) and lower rate of success is the whole herd medication without closure program is detailed in Figure 3 and long-term success rate of this method in comparison to other methods is shown in Table 1.

Elimination

M. hyopneumoniae in USA:

- seit 15-20 Jahren Ansätze zur Elimination
- anfangs (derzeit?) mit hohem Einsatz von Antibiotika
- Versuche *M. hyo*-negative Ferkel zu produzieren



Elimination

<https://doi.org/10.54846/am2024/141>

***M. hyopneumoniae* in USA:**

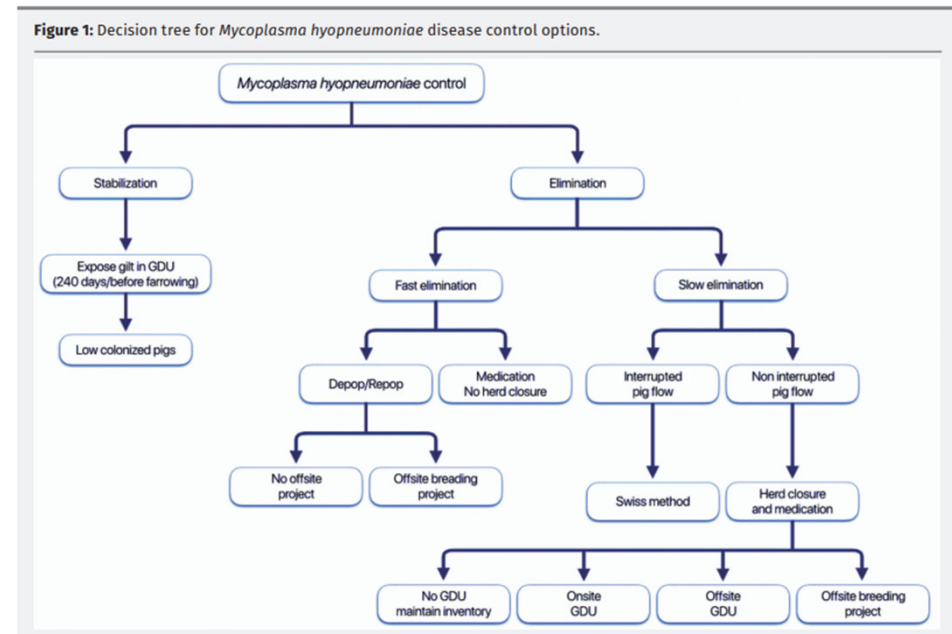
- regionale Elimination ist derzeit nicht zu erwarten

***M. hyopneumoniae* weltweit:**

- Stabilisierung der Betriebe insb. durch Vakzination

***Mycoplasma* elimination from a regional to national level (why aren't we there yet?)**

P. Yeske, DVM, MS
Swine Vet Center, St. Peter Minnesota



Mycoplasma hyorhinis

Silva et al. BMC Veterinary Research (2023) 19:268
<https://doi.org/10.1186/s12917-023-03807-w>

BMC Veterinary Research

TEMPORAL TRENDS OF S. SUIS, G. PARASUIS, M. HYORHINIS, A. SUIS, AND M. HYOSYNOVIAE

A.P. Serafini Poeta Silva¹, M. Almeida¹, A. Michael², M. Rahe³, C. Siepker², D. Magstadt², P. Piñeyro⁴, B. Arruda⁵, N. Macedo⁶, O. Sahin⁶, P. Gauger¹, K. Krueger⁷, R. Mugabi¹, J. Santos Streauslin¹, G. Trevisan¹, D. Linhares¹, G. De-Sousa-E-Silva⁸, E. Fano⁹, R. Main¹, K. Schwartz¹⁰, E. Burrough¹, R. Derscheid², P. Siththicharoenchai³, M.J. Clavijo¹¹

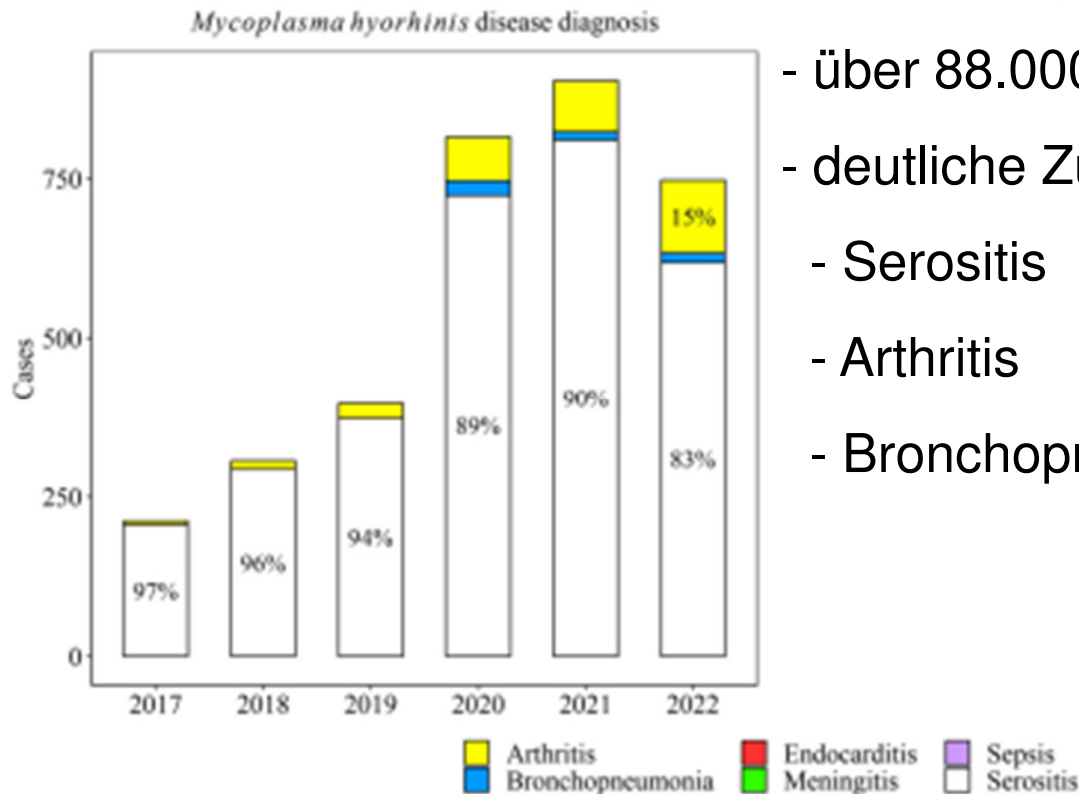
RESEARCH

Open Access

Detection and disease diagnosis trends (2017–2022) for *Streptococcus suis*, *Glaesserella parasuis*, *Mycoplasma hyorhinis*, *Actinobacillus suis* and *Mycoplasma hyosynoviae* at Iowa State University Veterinary Diagnostic Laboratory

Ana Paula Serafini Poeta Silva¹, Marcelo Almeida¹, Alyona Michael¹, Michael C. Rahe¹, Christopher Siepker¹, Drew R. Magstadt¹, Pablo Piñeyro¹, Bailey L. Arruda^{1,2}, Nubia R. Macedo¹, Orhan Sahin¹, Philip C. Gauger¹, Karen M. Krueger¹, Robert Mugabi¹, Jessica S. Streauslin¹, Giovanni Trevisan¹, Daniel C. L. Linhares¹, Gustavo S. Silva¹, Eduardo Fano¹, Rodger G. Main¹, Kent J. Schwartz¹, Eric R. Burrough¹, Rachel J. Derscheid¹¹, Panchan Siththicharoenchai¹¹ and Maria J. Clavijo¹

Retrospektive Auswertung in USA:



- über 88.000 Proben
- deutliche Zunahme seit 2017
- Serositis
- Arthritis
- Bronchopneumonie

Mycoplasma hyorhinis

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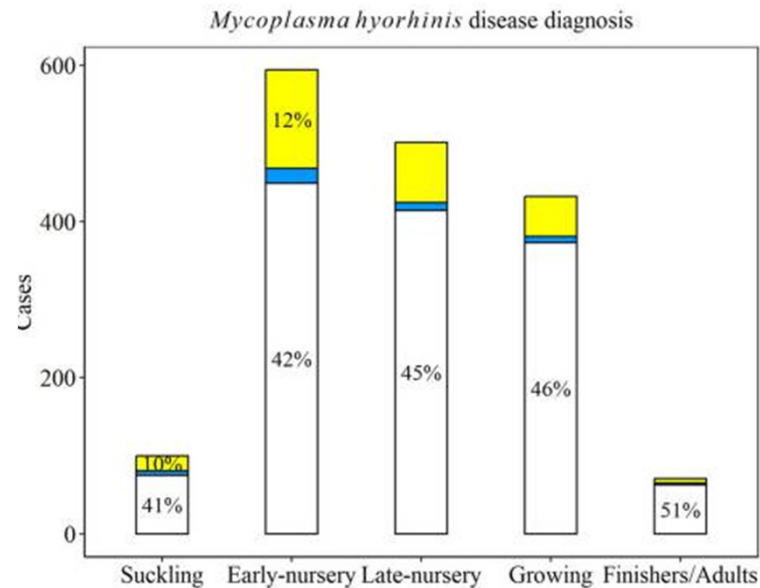
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Retrospektive Auswertung in USA:



- über 88.000 Proben
- deutliche Zunahme seit 2017
- Serositis
- Arthritis
- Bronchopneumonie
- insb. Anfang Aufzucht
- Zunahme auch von GPS und *S. suis*

Mycoplasma hyorhinis

Silva et al. BMC Veterinary Research (2023) 19:268
<https://doi.org/10.1186/s12917-023-03807-w>

BMC Veterinary Research

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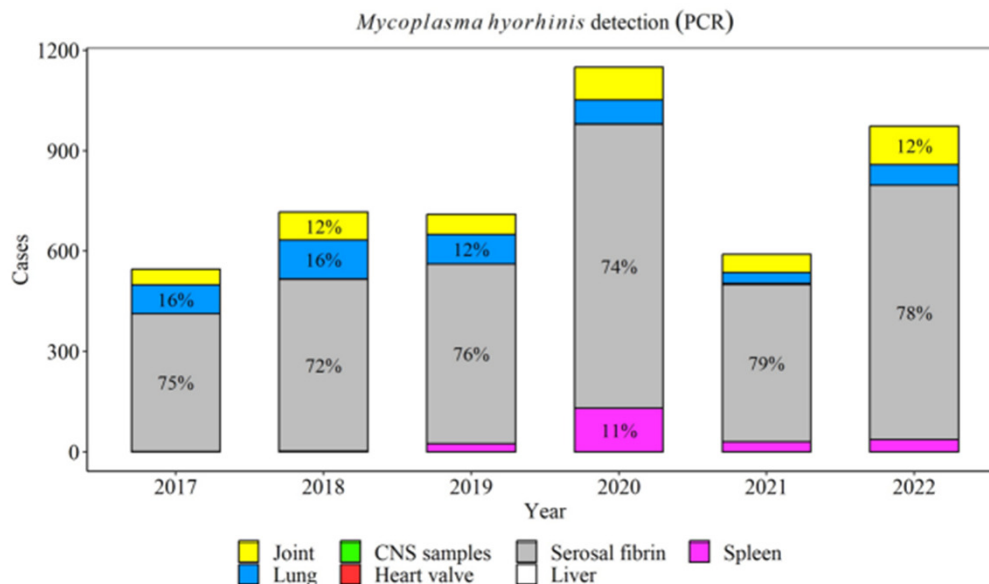
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<i>M. hyorhinis</i> cases	3292	100%
<i>M. hyorhinis</i> (only)	281	9%
<i>M. hyorhinis</i> + any other infectious etiology	3011	91%
<i>M. hyorhinis</i> + PRRSV	345	10%

- Nachweis gut aus serösen Häuten mit fibrinösen Veränderungen
- Nachweis weniger häufig aus Synovia
- Koinfektionen insb. PRRSV, *S. suis*, GPS

Mycoplasma hyorhinis

Spanien:

- Polyserositiden meist in 5. - 7. Lebenswoche

- häufig Perikarditis und Arthritis

- in 30% der Fälle Nachweis von GPS, *S. suis* und *M. hyorhinis*

- evtl. Einfluss von PRRSV-Infektionen

SURVEY ON POLYSEROSITIS LESIONS IN NURSERY PIGS FROM SPANISH AND BRAZILIAN FARMS

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²São Paulo State University (Unesp), School of Agricultural and Veterinarian Sciences, Jaboticabal, Brazil.

³Unitat Mixta d'Investigació IRTA-UAB en Sanitat Animal, Centre de Recerca en Sanitat Animal (CRESA), and Departament de Sanitat i Anatomia Animals, Facultat de Veterinària, Campus de la Universitat Autònoma de Barcelona (UAB), 08193 Bellaterra, Spain

Italien:

- Fallbericht Arthritiden

- *M. hyorhinis* und *M. hyosynoviae*

- Nachweis aus Perikardtupfer und Synovia

- Therapie mit Tiamulin

OUTBREAK OF ARTHRITIS IN PIGS WITH INVOLVEMENT OF MYCOPLASMA HYORHINIS AND MYCOPLASMA HYOSYNOVIAE

M. Merenda¹, M. Gastaldelli¹, A. Tondo¹, G. Foiani², C. Tonelli³, P. Mondin⁴, D. Prativiera¹, V. Righetti¹, R. Bardini⁵, G. Nai¹, D. Vio⁶

¹Mycoplasma Unit, SCT-1 Verona, Istituto Zooprofilattico Sperimentale delle Venezie, Buttapietra (VR), Italy

²Laboratorio di Istopatologia, SCS3, Istituto Zooprofilattico Sperimentale delle Venezie, Legnaro (PD), Italy

³Private Practice Veterinarian

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⁶Laboratorio di Patologia e Benessere della Specie Suina, SCT4, Istituto Zooprofilattico Sperimentale delle Venezie, Cordenons (PN), Italy

Mycoplasma hyorhinis

Niederlande:

DETECTION OF MYCOPLASMA HYOPNEUMONIAE AND MYCOPLASMA HYORHINIS IN WEANED PIGLETS PRESENTING RESPIRATORY SYMPTOMS IN THE NETHERLANDS

H. Prüst¹, M. Steenaert¹, M. Genzow², C. Sanderman³, H. Kreuzmann³, K. Junker³

- Nachweis von *M. hyorhinis* in 79% der Fälle von PRDC

Österreich:



Article

Retrospective Analysis of the Detection of Pathogens Associated with the Porcine Respiratory Disease Complex in Routine Diagnostic Samples from Austrian Swine Stocks

René Renzhammer¹, Angelika Auer², Igor Loncaric³, Annabell Entenfellner⁴, Katharina Dimmel², Karin Walk², Till Rümenapf², Joachim Spargser³ and Andrea Ladinig^{1,*}

Renzhammer et al., 2023

- 1.975 Proben von Schweinen mit resp. Symptomatik

- *M. hyorhinis* mit 55% der am häufigsten nachgewiesene Erreger
- signifikanter Zusammenhang zwischen Nachweis von *M. hyorhinis* und *S. suis*

Mycoplasma hyorhinis

MYCOPLASMA HYORHINIS ISOLATED FROM THE CENTRAL NERVOUS SYSTEM OF PIGLETS WITH MENINGITIS

M. Büniger¹, J. Spergser², L. Schwarz¹, R. Brunthaler³, P. Pineyro⁴, A. Griessler⁵, A. Ladinig¹

¹University Clinic for Swine, Department for Farm Animals and Veterinary Public Health, University of Veterinary Medicine Vienna, Vienna, Austria

²Institute of Microbiology, University of Veterinary Medicine Vienna, Austria

³Institute of Pathology, University of Veterinary Medicine Vienna, Austria

⁴Department of Veterinary Diagnostic and Production Animal Medicine, Veterinary Diagnostic Laboratory, Iowa State University, Ames, IA

⁵Traunkreis Vetclinic OG Grossendorf 3, 4551 Ried im Traunkreis - Austria

Österreich:

- Fallbericht

- Absetzferkel mit Arthritiden und ZNS-Symptomatik

- fibrinöse Meningitis, Serositis und Arthritis

- Nachweis von *M. hyorhinis* aus ZNS, Lunge, Serosentupfern und Synovia



A core genome multilocus sequence typing scheme for *Mycoplasma hyorhinis*

Moritz Büniger^{a,b}, Magdalena Posch^a, Julia Wiesauer^a, Igor Loncaric^a, Adriana Cabal Rosel^c, Werner Ruppitsch^c, Andrea Ladinig^b, Joachim Spergser^{a,*}

^a University of Veterinary Medicine Vienna, Institute of Microbiology, Veterinärplatz 1, 1210, Vienna, Austria

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^c Austrian Agency for Health and Food Safety, Institute of Medical Microbiology and Hygiene, Währinger Straße 25A, 1096, Vienna, Austria

M. Büniger et al.

Veterinary Microbiology 262 (2021) 109249

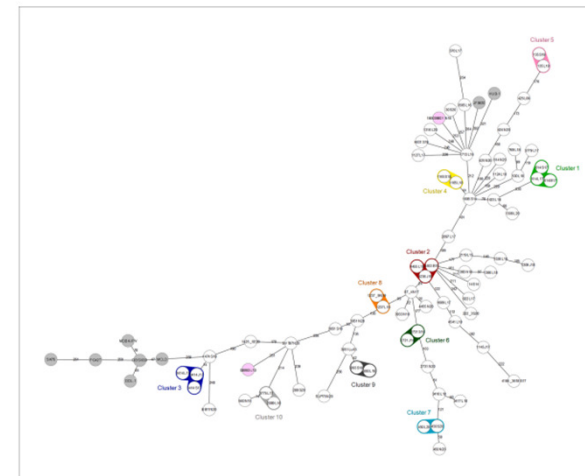


Fig. 1. Minimum spanning tree based on allelic profiles of 453 core genome targets from 81 *M. hyorhinis* strains. The distance matrix underlying the network was built from all pairwise allelic profile comparisons of 453 cgMLST targets using the pairwise ignoring-missing-values option in ScoSphere + software. Ten distinct clonal clusters with fewer than 8 allele differences are color coded. Strain origin is indicated by the color of the circles: pink = Germany, grey = publicly available genome, white = Austria. The number on connecting lines illustrates the number of differing alleles in a pairwise comparison.

Büniger et al., 2021

Schlussfolgerung

ASP:

- weltweite Eradikation von ASP ist nicht zu erwarten
- Bekämpfungsstrategien gegen ASP sehr heterogen
- Optimierung der Biosicherheit sinnvoll

andere Erreger:

- Eliminationen häufig schwierig
- Vakzinationen von weiter zunehmend hoher Bedeutung
- steigende Relevanz von *M. hyorhinis* weltweit erkennbar