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## Employment

**Senior Researcher**  
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## Research outputs

### **A simulation model for highly pathogenic avian influenza spread in Danish wild birds**

Liu, Yangfan, Kjær, Lene Jung, Boklund, Anette, Clausen, P., Nygaard, T., Ward, M., Laffan, S. & Kirkeby, Carsten, 19 Mar 2024.

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### **Kan man forudsige fugleinfluenza i Danmark? Kan man forudsige fugleinfluenza i Danmark?**

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### **Are all avian influenza outbreaks in poultry the same? The predicted impact of poultry species and virus subtype**

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Svennesen, Line & Kirkeby, Carsten, 8 Feb 2024

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### **Lactational treatment of bovine mastitis: Development over time and factors influencing cytological cure**

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### **Modelling transmission of Avian Influenza in wild birds using a spatiotemporal cellular automata model**

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### **Use of Danish national somatic cell count data to assess the need for dry-off treatment in Holstein dairy cattle**

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Lyngse, Frederik Plesner, Kirkeby, Carsten, Denwood, Matt, Christiansen, L. E., Mølbak, Kåre, Møller, C. H., Skov, R. L., Krause, Tyra Grove, Rasmussen, M., Sieber, R. N., Johannesen, T. B., Lillebaek, Troels, Fonager, J., Fomsgaard, A., Møller, F. T., Stegger, M., Overvad, M., Spiess, K. & Mortensen, Laust Hvas, 30 Jan 2022, 2 p.

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Kjær, Lene Jung, Hjulsager, C., Larsen, Lars, Boklund, Anette, Halasa, T., Ward, M. P. & Kirkeby, Carsten, 11 Mar 2021, *Society for Veterinary Epidemiology and Preventive Medicine: Proceedings: Online, 24-26 March 2021*. Society for Veterinary Epidemiology and Preventive Medicine

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### **Smitemodeller bygger på videnskab, ikke på blokpolitik**

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**Economic and epidemiological impact of different intervention strategies for subclinical and clinical mastitis**

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**Nyt studie viser stor forskel på spredning af bakterier hos danske malkekøer**

Kirkeby, Carsten, 2 Apr 2019, In: videnskab.dk.

### **Differential Somatic Cell Count (DSCC) for Detecting Intra-mammary Infections**

Kirkeby, Carsten, 27 Mar 2019.

### **Danske præciseringer af internationale mastitisanbefalinger. De internationale mastitisanbefalinger består af 10 punkter, hvor nogle nu kan præciseres for danske forhold baseret på resultaterne fra STOPMAST projektet**

Nielsen, Søren Saxmose, Krogh, M. A., Kirkeby, Carsten, Østergaard, S. & Halasa, T., 14 Mar 2019, 3 p.  
www.landbrugsinfo.dk : Landbrug og fødevarer SEGES.

### **Brug beslutningstræet til at vælge den rigtige behandling af mastitis: Når der tages beslutninger om klinisk og subklinisk mastitis, er det væsentligt for behandlingens effekt, smittespredning og økonomi. Beslutningstræet viser, hvad simuleringsmodeller foreslår som det bedste.**

Gussmann, Maya Katrin, Halasa, T., Kirkeby, Carsten & Nielsen, Søren Saxmose, 8 Mar 2019, 2 p. Landbrug og fødevarer SEGES.

### **Ny forskning viser vejen til at reducere både mastitis og antibiotikaforbrug. De danske landmænd kan balancere mellem antibiotikaforbrug og mastitis. Et nyt studie viser, at det er muligt at reducere begge dele**

Kirkeby, Carsten, Halasa, T., Gussmann, Maya Katrin & Nielsen, Søren Saxmose, 6 Mar 2019, 2 p. Landbrug og fødevarer SEGES.

### **Differential Somatic Cell Count (DSCC) for Detecting Intra-mammary Infections**

Kirkeby, Carsten, 29 Jan 2019.

### **A cohort study of the effect of *Streptococcus agalactiae* on milk yield and somatic cell count in Norwegian dairy cows**

Holmøy, I. H., Toftaker, I., Kirkeby, Carsten, Østerås, O., Jørgensen, H. J. & Nødtvedt, A., 2019, In: Journal of Dairy Science. 102, 9, p. 8385-8399

### **Associations between udder health and culling in dairy cows**

Gussmann, Maya Katrin, Denwood, Matt, Kirkeby, Carsten, Farre, M. & Halasa, T., 2019, In: Preventive Veterinary Medicine. 171, 104751.

### **Composite or aseptic quarter milk samples: Sensitivity and specificity of PCR and bacterial culture of *Staphylococcus aureus* based on Bayesian latent class evaluation**

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### **Economic and epidemiological impact of different intervention strategies for clinical contagious mastitis**

Gussmann, Maya Katrin, Steeneveld, W., Kirkeby, Carsten, Hogeveen, H., Nielen, M., Farre, M. & Halasa, T., 2019, In: Journal of Dairy Science. 102, 2, p. 1483-1493

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### **Observations of female and mixed sex swarming behaviour in *Culicoides Latreille, 1809* (Diptera: Ceratopogonidae)**

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### **Determinants of antimicrobial treatment for udder health in Danish dairy cattle herds**

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**A strain-, cow-, and herd-specific bio-economic simulation model of intramammary infections in dairy cattle herds**  
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**Analysis of the dynamics of Staphylococcus aureus in two Danish dairy cattle herds**  
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**Blended learning for korte og specialiserede undervisningsforløb**  
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**Evaluating the impact of transmission mode, calibration level and farmer compliance in simulation models of paratuberculosis in dairy herds**  
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**Danske metoder kan hjælpe med at bremse alt fra ebola til fugleinfluenza**  
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**Determinants for Treatments in Relation to Udder Health in Danish Dairy Cattle Farms**  
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**Epidemiological and economic consequences of purchasing livestock infected with Mycobacterium avium subsp. paratuberculosis**  
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**Pas på med indkøb af dyr med paratuberkulose**

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**Simulating control of paratuberculosis in Danish dairy herds**

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**Treatment Patterns for Mastitis in Danish Dairy Cattle Farms**

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**Microclimate temperature play a vital role for vector borne disease transmission in the cool scandinavian climate**

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**Observations of movement dynamics of flying insects using high resolution lidar**

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#### **Optimised surveillance for paratuberculosis**

Kirkeby, Carsten, Græsbøll, K., Nielsen, Søren Saxmose, Hisham Beshara Halasa, T., Toft, N. & Jungersen, G., 2016.

#### **Spatial risk of tick borne infections – creating a ScandTick Innovation website for both the public and the health sector based on surveillance data**

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#### **The impact of microclimatic temperature on vector-borne disease transmission in Denmark**

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#### **Vectorborne zoonoses**

Bødker, René, Clausen, C. G., Kirkeby, Carsten, Byriel, David Bille & Schou, K. K., 2016, *Annual Report on Zoonoses in Denmark 2015*. Helwich, B. & Christensen, J. (eds.). Søborg: National Food Institute, Technical University of Denmark, p. 18-19 2 p.

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#### **Ny forskning optimerer overvågning af paratuberkulose**

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#### **iCull – A bioeconomic model for herd management and disease control**

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#### **Mikroskopiske droners hemmelige mission afsløret**

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#### **Association of MAP specific ELISA-responses and productive parameters in 314 Danish dairy farms**

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#### **Association of MAP specific ELISA-responses and productive parameters in 367 Danish dairy farms**

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#### **Rapid spread of Schmallenberg virus-infected biting midges (*Culicoides* spp.) across Denmark in 2012**

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### **Sibirsk mitte opdaget i Småland**

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### **iCull - a herd-specific tool for financial evaluation of the impact of paratuberculosis**

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### **Spatial abundance and clustering of Culicoides (Diptera: Ceratopogonidae) on a local scale**

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### **Spatio-temporal abundance and dispersal of Culicoides**

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### **Spatio-temporal abundance of Culicoides on a local scale**

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### **Spatio-temporal optimization of sampling for bluetongue vectors (Culicoides) near grazing livestock**

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### **The range of attraction for light traps catching *Culicoides* biting midges (Diptera: Ceratopogonidae)**

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### **Emerging Schmallenberg and Bluetongue virus in Europe – what should we expect next?**

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### **Evidence for *Culicoides obsoletus* group as vector for Schmallenberg virus in Denmark**

Rasmussen, L. D., Kristensen, B., Kirkeby, Carsten, Rasmussen, T. B., Belsham, G., Bødker, René & Bøtner, A., 2012.

### **Schmallenberg virus fundet i mitter i Danmark**

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### **The impact of climate environment and control on *Culicoides* borne Schmallenberg virus**

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### **R0-modeling as a tool for early warning and surveillance of exotic vector borne diseases in Denmark**

Bødker, René, Kristensen, B., Græsbøll, K., Kirkeby, Carsten & Stockmarr, A., 2011

### **Spatial models for the distribution of *Culicoides* on a local scale**

Kirkeby, Carsten, Bødker, René, Stockmarr, A. & Lind, P., 2011

**An atlas of climatic and environmental determinants of present and future veterinary and zoonotic diseases in the Nordic area**

Bødker, René & Kirkeby, Carsten, 2010.

**Mitternes gådefulde liv**

Kirkeby, Carsten, 2010, In: Faar. 75, 01, p. 14-15 2 p.

**Modeling the density of bluetongue vectors in a field**

Kirkeby, Carsten, Bødker, René & Stockmarr, A., 2010.

**Modelling the seasonal variation in the basic reproduction ratio for bluetongue – a model incorporating Culicoides biology to quantify the vaccination cover needed to prevent outbreaks in the Nordic countries**

Bødker, René, Græsbøll, K., Kristensen, B., Kirkeby, Carsten & Stockmarr, A., 2010.

**Simple spatial distribution models for vector density in a field: Bloodsucking creatures from dusk to dawn**

Kirkeby, Carsten, Bødker, René, Stockmarr, A., Lind, P. & Græsbøll, K., 2010

**Simulating the spread of Bluetongue virus – Focused on the effects of spatial distribution of cattle**

Græsbøll, K., Bødker, René, Christiansen, L. E., Enøe, C. & Kirkeby, Carsten, 2010

**Association between land cover and Culicoides (Diptera: Ceratopogonidae) breeding sites on four Danish cattle farms**

Kirkeby, Carsten, Bødker, René, Stockmarr, A. & Enøe, C., 2009, In: Entomologica Fennica. 20, 4, p. 228-232 5 p.

**Hvor kommer mitterne fra?**

Kirkeby, Carsten, 2009, In: Dansk Veterinaertidsskrift.

**Kvægsygdom kontrolleres ved studier af insektadfærd**

Jørgensen, S. B. & Kirkeby, Carsten, 2009, In: FoodDTU Midt i Ugen. 75

**Mitternes hemmeligheder**

Kirkeby, Carsten, 2009, In: Dansk Veterinaertidsskrift. 92, 23, p. 35 1 p.

## Activities

**PAIR Project kickoff meeting 2024**

Kirkeby, Carsten (Participant), Bjerrum, A. (Participant) & Madsen, M. (Participant)  
23 Jan 2024 → 24 Jan 2024

**The Danish Trout Case**

Kirkeby, Carsten (Other)  
11 Jan 2024

**Opponent for PhD defense**

Kirkeby, Carsten (Editor)  
18 Oct 2023

**Short term mission award**

Kirkeby, Carsten (Participant)  
18 Oct 2023

**A recent Danish mastitis treatment project**

Kirkeby, Carsten (Other) & Svennesen, Line (Other)  
28 Sep 2023

**Dairy Farmer and Veterinarian Perception of Udder Health Management**

Kirkeby, Carsten (Other) & Farre, M. (Other)  
27 Sep 2023

**Auxiliary supervisor at University of Sydney**

Kirkeby, Carsten (Participant)  
26 May 2023

**Simulating outbreaks of avian influenza within poultry flocks**

Kirkeby, Carsten (Other)  
26 Apr 2023

**ESFLU scientific meeting Barcelona 25-27 April 2023**

Kirkeby, Carsten (Participant)  
25 Apr 2023 → 27 Apr 2023

**Exploring the role of wild birds in transmitting avian influenza virus in Denmark using a spatiotemporal epidemic model**

Liu, Yangfan (Speaker), Kjær, Lene Jung (Other), Boklund, Anette (Other), Kirkeby, Carsten (Other), Clausen, P. (Other) & Nygaard, T. (Other)  
23 Mar 2023

**One Health Summer School 2022**

Kirkeby, Carsten (Invited speaker)  
15 Aug 2022 → 19 Aug 2022

**Scientific Reports (Journal)**

Kirkeby, Carsten (Editor)  
10 Aug 2022

**ISVEE 16 Halifax 2022**

Kirkeby, Carsten (Participant) & Denwood, Matt (Participant)  
6 Aug 2022 → 12 Aug 2022

**ISVEE 16 Pre-symposium workshop**

Kirkeby, Carsten (Organizer) & Denwood, Matt (Organizer)  
6 Aug 2022 → 7 Aug 2022

**Michael P. Ward**

Kirkeby, Carsten (Host)  
29 Apr 2022 → 13 May 2022

**Nynke Schnipper**

Kirkeby, Carsten (Host)  
14 Apr 2022 → 16 May 2022

**University of Sydney**

Kirkeby, Carsten (Visiting researcher) & Ward, M. P. (Visiting researcher)  
30 Mar 2022 → 13 Apr 2022

**SVEPM 2022**

Kirkeby, Carsten (Participant)

22 Mar 2022 → 25 Mar 2022

**Spatial patterns of avian influenza in wild birds from Denmark, 2006-2020**

Kjær, Lene Jung (Other), Hjulsager, C. (Other), Larsen, Lars (Other), Boklund, Anette (Other), Halasa, T. (Other), Ward, M. P. (Other) & Kirkeby, Carsten (Other)

25 Mar 2021

**Risikofaktorer for aviær influenza i Danmark - resultatet af ROFUS projektet**

Kjær, Lene Jung (Other), Kirkeby, Carsten (Other), Boklund, Anette (Other), Larsen, Lars (Other), Hjulsager, C. K. (Other), Halasa, T. (Other) & Ward, M. P. (Other)

17 Mar 2021

**Avian influenza in Denmark: Passive surveillance bias and future monitoring**

Kirkeby, Carsten (Other)

15 Sep 2020

**Husmand / Houseman**

Kirkeby, Carsten (Consultant)

1 Sep 2020 → ...

**International Colloquium for Paratuberculosis 2020**

Kirkeby, Carsten (Organizer)

14 Jun 2020 → 18 Jun 2020

**Mulighederne med DSCC (Differential Somatic Cell Count)**

Kirkeby, Carsten (Other)

23 Jan 2020

**Tillægsrapport af den 4. april 2020 til ekspertrapport af den 2. april 2020 vedr. matematisk modellering af COVID19 smittespredning og sygehusbelastning ved scenarier for delvis genåbning af Danmark**

Kirkeby, Carsten (Participant), Denwood, Matt (Participant) & Halasa, T. (Participant)

2020

**Photonic classification of pests**

Kirkeby, Carsten (Other)

13 Dec 2019

**Forskning og formidling**

Kirkeby, Carsten (Other)

10 Sep 2019

**Introduction to Modelling of Disease Spread and Control**

Kirkeby, Carsten (Organizer) & Halasa, T. (Organizer)

24 Jun 2019 → 28 Jun 2019

**Modelling economical impact of disease in animal husbandry**

Kirkeby, Carsten (Other)

28 May 2019

**Sensitivity and Specificity of PCR and Bacterial Culture of S. aureus based on Bayesian LCA**

Kirkeby, Carsten (Other)

16 May 2019

**Cost effectiveness and mastitis intervention**

Kirkeby, Carsten (Participant)

14 May 2019

**IDF mastitis conference 2019**

Kirkeby, Carsten (Organizer)  
14 May 2019 → 16 May 2019

**Differential Cell Count (DSCC) for indicating Intramammary Infections in Dairy cows**

Kirkeby, Carsten (Other)  
11 Apr 2019

**Bliv opdateret på yversundhed i Danmark**

Kirkeby, Carsten (Participant) & Halasa, T. (Participant)  
10 Jan 2019

**Differential cell counts – promising results from the EMCoMAST project**

Kirkeby, Carsten (Other)  
31 Oct 2018

**Ekstern vejleder**

Kirkeby, Carsten (Participant), Christiansen, L. E. (Participant) & Graesboll, K. (Participant)  
4 Sep 2018 → 4 Dec 2018

**One Health Summer School**

Kirkeby, Carsten (Participant)  
2018

**Spread and control of livestock associated methicillin resistant Staphylococcus aureus (LA-MRSA) in Danish pig herds**

Kirkeby, Carsten (Examiner)  
2018

**ETALEE 2017**

Kirkeby, Carsten (Participant)  
2017

**EVALUATION OF ADAPTIVE TEST STRATEGIES FOR CONTROL AND ERADICATION OF PARATUBERCULOSIS WITHIN DAIRY CATTLE HERDS**

Kirkeby, Carsten (Other)  
2017

**One Health Summer School**

Kirkeby, Carsten (Participant)  
2017

**Simulating control of paratuberculosis in Danish dairy herds**

Kirkeby, Carsten (Other)  
2017

**One Health Summer School**

Kirkeby, Carsten (Participant)  
2016

**SVEPM**

Kirkeby, Carsten (Participant)  
2016



**Bio-economic simulation modeling: How to control Paratuberculosis on dairy farms?**

Kirkeby, Carsten (Other)

3 Nov 2015

**Simulation modelling of paratuberculosis within herds**

Kirkeby, Carsten (Other)

30 Sep 2015

**NEAT Economics of Animal Health workshop, Cesenatico, Italy, 2015**

Kirkeby, Carsten (Participant)

2015

**One Health Summer School**

Kirkeby, Carsten (Participant)

2015

**8th Annual Meeting of Epizone**

Kirkeby, Carsten (Participant)

2014

**One Health Summer School**

Kirkeby, Carsten (Participant)

2014

**Informations medieskole**

Kirkeby, Carsten (Participant)

2013

**Prizes**

**EDENext 2013 3rd prize PhD award**

Kirkeby, Carsten (Recipient), 2013

**Erasmus+ Grant**

Kirkeby, Carsten (Recipient), 1 Mar 2022

**MedVetNet Short Term Mission Grant**

Kirkeby, Carsten (Recipient), 1 Sep 2023

**Partnership Collaboration Award**

Kirkeby, Carsten (Recipient), 14 Dec 2018

**Partnership Collaboration Award**

Kirkeby, Carsten (Recipient), 14 Dec 2019

**PhD Cup 2014**

Kirkeby, Carsten (Recipient), Apr 2014

Investigating nature. My main interest is to find patterns in a large variety of biological systems, extract parameters and create computer models to understand the systems. I mainly work with epidemiological methods, including estimation of transmission rates, simulation of disease outbreaks in different populations. This often includes bioeconomic modeling of the consequences and control scenarios for disease outbreaks. I also have a passion for building bridges between research areas, merging different disciplines into new methods for biological discoveries. My main research interests

include epidemiology, (lidar) entomology, amphibians, evolutionary and general biology.