How a 10-day heatwave impacts barley grain yield when superimposed onto future levels of temperature and CO₂ as single and combined factors

Heatwaves pose a threat to crop production and are predicted to increase in frequency, length and intensity as a consequence of global warming. Future heatwaves will occur in addition to the ongoing increase of mean temperature and CO₂. To test effects of heatwaves superimposed to future climate scenarios, 22 barley accessions were cultivated with elevated temperature (+5 °C) and CO₂ (700 ppm) as single factors and in combination. The control treatment mimicked ambient Scandinavian early summer conditions (19/12 °C, day/night; 400 ppm CO₂). Around flowering a 10-day heatwave of 33/28 °C (day/night) was superimposed to all treatments. The lowest average grain yield was observed when the heatwave was superimposed onto the combined elevated temperature and CO₂ treatment. Here the yield decreased by 42% compared to no heatwave and 52% compared to ambient conditions. When the heatwave was superimposed onto ambient conditions the average grain yield decreased by 37% compared to no heatwave. There was no significant difference between the relative grain yield decrease caused by the heatwave in the ambient and future climate scenarios. In contrast, the vegetative aboveground biomass increased upon heatwave exposure, leading to a strong decline in the harvest index. Our results strongly emphasize the need to produce heatwave resilient cultivars.

General information
State: Published
Organisations: Department of Environmental Engineering, Air, Land & Water Resources, Technical University of Denmark, Statistics and Data Analysis, University of Copenhagen, Natural Resources Institute Finland (Luke)
Contributors: Heinz Ingvorsen, C., Lyngkjær, M. F., Peltonen-Sainio, P., Nørgaard Mikkelsen, T., Stockmarr, A., Bagger Jørgensen, R.
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BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 2.84
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BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 2.96
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Scopus rating (2013): CiteScore 2.91
Web of Science (2013): Impact factor 2.206
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BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 2.59
Web of Science (2012): Impact factor 2.106
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A Rollercoaster to Model Touch Interactions during Turbulence

We contribute to a project introducing the use of a large single touch-screen as a concept for future airplane cockpits. Human-machine interaction in this new type of cockpit must be optimised to cope with the different types of normal use as well as during moments of turbulence (which can occur during flights varying degrees of severity). We propose an original experimental setup for reproducing turbulence (not limited to aviation) based on a touch-screen mounted on a rollercoaster. Participants had to repeatedly solve three basic touch interactions: a single click, a one-finger drag-and-drop, and a zoom operation involving a 2-finger pinching gesture. The completion times of the different tasks as well as the number of unnecessary interactions with the screen constitute the collected user data. We also propose a data analysis and statistical method to combine user performance with observed turbulence, including acceleration and jerk along the different axes. We then report some of the implications of severe turbulence on touch interaction and make recommendations as to how this can be accommodated in future design solutions.

General information
State: Published
Organisations: Department of Management Engineering, Technology and Innovation Management, Statistics and Data Analysis, Department of Applied Mathematics and Computer Science, Technical University of Denmark
Contributors: Alapetite, A., Møllenbach, E., Stockmarr, A., Minakata, K.
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Web of Science (2017): Impact factor 3.379
Effects of Lifestyle on Muscle Strength in a Healthy Danish Population

Background: Life style is expected to influence muscle strength. This study aimed at assessing a possible relationship between smoking, alcohol intake and physical activity, and muscle strength in a healthy Danish population aged 20-79 years. Population study based on data collected from The Copenhagen City Heart Study (CCHS) and measurements of isokinetic muscle strength from a sub-study of randomly selected healthy participants from CCHS.

Methods: 126 women and 63 men were studied. All participants completed a questionnaire regarding their lifestyle, including physical activity, alcohol intake and smoking habits. Isokinetic muscle strength was measured over the upper extremities (UE), trunk, and lower extremities (LE). Multivariate analyses including all of the variables were carried out.
Results: The level of daily physical activity during leisure was positively correlated to muscle strength in the lower extremities (p = 0.03) for women, and lower extremities (p = 0.03) and trunk (p = 0.007) for men. Alcohol intake was in general not correlated to muscle strength. No clear effect of smoking was seen on muscle strength. Conclusions: Our results show that physical activity during leisure is associated with a positive effect on muscle strength in both sexes. When keeping alcohol intake within the recommended limits, alcohol does not seem to affect muscle strength negatively. No effect of smoking on muscle strength was found in our group of healthy subjects. The findings are of importance when considering recommendation on life style when wishing to keep fit with age to be able to carry out daily activities.

General information
State: Published
Organisations: Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, Copenhagen University Hospital, University of Copenhagen, Copenhagen University Hospital Frederiksberg and Bispebjerg
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Monthly variation in the probability of presence of adult Culicoides populations in nine European countries and the implications for targeted surveillance
BACKGROUND: Biting midges of the genus Culicoides (Diptera: Ceratopogonidae) are small hematophagous insects responsible for the transmission of bluetongue virus, Schmallenberg virus and African horse sickness virus to wild and domestic ruminants and equids. Outbreaks of these viruses have caused economic damage within the European Union. The spatio-temporal distribution of biting midges is a key factor in identifying areas with the potential for disease spread. The aim of this study was to identify and map areas of negligible adult activity for each month in an average year. Average monthly risk maps can be used as a tool when allocating resources for surveillance and control programs within Europe.
METHODS: We modelled the occurrence of C. imicola and the Obsoletus and Pulicaris ensembles using existing entomological surveillance data from Spain, France, Germany, Switzerland, Austria, Denmark, Sweden, Norway and Poland. The monthly probability of each vector species and ensembles being present in Europe based on climatic and environmental input variables was estimated with the machine learning technique Random Forest. Subsequently, the monthly probability was classified into three classes: Absence, Presence and Uncertain status. These three classes are useful for mapping areas of no risk, areas of high-risk targeted for animal movement restrictions, and areas with an uncertain status that need active entomological surveillance to determine whether or not vectors are present.
RESULTS: The distribution of Culicoides species ensembles were in agreement with their previously reported distribution in Europe. The Random Forest models were very accurate in predicting the probability of presence for C. imicola (mean AUC = 0.95), less accurate for the Obsoletus ensemble (mean AUC = 0.84), while the lowest accuracy was found for the Pulicaris ensemble (mean AUC = 0.71). The most important environmental variables in the models were related to temperature and precipitation for all three groups.
CONCLUSIONS: The duration periods with low or null adult activity can be derived from the associated monthly distribution maps, and it was also possible to identify and map areas with uncertain predictions. In the absence of ongoing vector surveillance, these maps can be used by veterinary authorities to classify areas as likely vector-free or as likely risk areas from southern Spain to northern Sweden with acceptable precision. The maps can also focus costly entomological surveillance to seasons and areas where the predictions and vector-free status remain uncertain.

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Organisations: Epidemiology, National Veterinary Institute, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, National Veterinary Institute, University of Oldenburg, Institute for Veterinary Public Health, CIRAD, Université de Strasbourg, University of the Balearic Islands, University of Zaragoza, University of Zurich, Aarhus University, Friedrich-Loeffler-Institute, National Veterinary Research Institute, Norwegian Veterinary Institute, Avia-GIS, EID Méditerranée
Probabilistic approach for assessing cancer risk due to benz[a]pyrene in barbecued meat: Informing advice for population groups

Consumption of meat prepared by barbecuing is associated with risk of cancer due to formation of carcinogenic compounds including benz[a]pyrene (BaP). Assessment of a population's risk of disease and people's individual probability of disease given specific consumer attributes may direct food safety strategies to where impact on public health is largest. The aim of this study was to propose a model that estimates the risk of cancer caused by exposure to BaP from barbecued meat in Denmark, and to estimate the probability of developing cancer in subgroups of the population given different barbecuing frequencies. We developed probabilistic models applying two dimensional Monte Carlo simulation to take into account the variation in exposure given age and sex and in the individuals' sensitivity to develop cancer after exposure to BaP, and the uncertainty in the dose response model. We used the Danish dietary consumption survey, monitoring data of chemical concentrations, data on consumer behavior of frequency of barbecuing, and animal dose response data. We estimated an average extra lifetime risk of cancer due to BaP from barbecued meat of $6.8 \times 10^{-5}$ (95% uncertainty interval $2.6 \times 10^{-7}$ - $7.0 \times 10^{-4}$) in the Danish population. This corresponds to approximately one to 4,074 extra cancer cases over a lifetime, reflecting wide uncertainty. The impact per barbecuing event on the risk of cancer for men and women of low body weight was higher compared to higher bodyweight. However, the difference due to sex and bodyweight between subgroups are dwarfed by the uncertainty. This study proposes a model that can be applied to other substances and routes of exposure, and allows for deriving the change in risk following a specific change in behaviour.

The presented methodology can serve as a valuable tool for risk management, allowing for the formulation of behaviour advice targeted to specific sub-groups in the population.

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Organisations: National Food Institute, Research group for Risk Benefit, Statistics and Data Analysis, Department of Applied Mathematics and Computer Science, Research group for Genomic Epidemiology, Research group for Analytical Food Chemistry, National Institute for Public Health and the Environment, Technical University of Denmark
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BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.11 SJR 1.236 SNIP 1.101
Web of Science (2016): Indexed yes
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Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Spatial and temporal variation in the abundance of Culicoides biting midges (Diptera: Ceratopogonidae) in nine European countries

Biting midges of the genus Culicoides (Diptera: Ceratopogonidae) are vectors of bluetongue virus (BTV), African horse sickness virus and Schmallenberg virus (SBV). Outbreaks of both BTV and SBV have affected large parts of Europe. The spread of these diseases depends largely on vector distribution and abundance. The aim of this analysis was to identify and quantify major spatial patterns and temporal trends in the distribution and seasonal variation of observed Culicoides abundance in nine countries in Europe. We gathered existing Culicoides data from Spain, France, Germany, Switzerland, Austria, Denmark, Sweden, Norway and Poland. In total, 31,429 Culicoides trap collections were available from 904 ruminant farms across these countries between 2007 and 2013. The Obsoletus ensemble was distributed widely in Europe and accounted for 83% of all 8,842,998 Culicoides specimens in the dataset, with the highest mean monthly abundance recorded in France, Germany and southern Norway. The Pulicaris ensemble accounted for only 12% of the specimens and had a relatively southerly and easterly spatial distribution compared to the Obsoletus ensemble. Culicoides imicola Kieffer was only found in Spain and the southernmost part of France. There was a clear spatial trend in the accumulated annual abundance from southern to northern Europe, with the Obsoletus ensemble steadily increasing from 4000 per year in southern Europe to 500,000 in Scandinavia. The Pulicaris ensemble showed a very different pattern, with an increase in the accumulated annual abundance from 1600 in Spain, peaking at 41,000 in northern Germany and then decreasing again toward northern latitudes. For the two species ensembles and C. imicola, the season began between January and April, with later start dates and increasingly shorter vector seasons at more northerly latitudes. We present the first maps of seasonal Culicoides abundance in large parts of Europe covering a gradient from southern Spain to northern Scandinavia. The identified temporal trends and spatial patterns are useful for planning the allocation of resources for international prevention and surveillance programmes in the European Union.
Biting midges (Diptera, Ceratopogonidae) of the genus Culicoides are important vectors of pathogens causing diseases in free living and production animals and can lead to large economic losses in many European countries. In Europe, Culicoides imicola and the Obsoletus group are considered to be the main vectors of bluetongue virus that mostly affects ruminants such as cattle and sheep. Spatio-temporal modelling of vector distribution and abundance allows us to identify high risk areas for virus transmission and can aid in applying effective surveillance and control measures.

We used presence-absence and monthly abundance data of Culicoides from 1005 sites across 9 countries (Spain, France, Denmark, Poland, Switzerland, Austria, Poland, Sweden, Norway) collected between the years 2007 and 2013. The dataset included information on the vector species abundance (number of specimens caught per night), GPS coordinates of each trap, start and end dates of trapping. We used 120 environmental predictor variables together with Random Forest machine learning algorithms to predict the overall species distribution (probability of occurrence) and monthly abundance in Europe. We generated maps for every month of the year, to visualize the abundance of C. imicola and Obsoletus group in Europe as well as distribution maps showing the probability of occurrence.

We were able to create predictive maps of both Culicoides sp. occurrence and abundance using Random Forest models, and although the variance was large, the predicted abundance values for each site had a positive correlation with the observed abundance. We found relatively large spatial variations in probability of occurrence and abundance for both C. imicola and the Obsoletus group. For C. imicola probability of occurrence and abundance was higher in southern Spain, where as the Obsoletus group had higher probability of occurrence and abundance in central and northern Europe such as France and Germany. Temporal variation was also observed with higher abundance occurring during summer months and low or no abundance during winter months for both C. imicola and the Obsoletus group, although abundance was generally higher for a longer period of time for C. imicula than for the Obsoletus group.

Using machine learning techniques, we were able to model the spatial distribution in Europe for C. imicula and the Obsoletus group in terms of abundance and suitability (probability of occurrence). Our maps corresponded well with the previously reported distribution for C. imicola and the Obsoletus group. The observed seasonal variation was also consistent with reported population dynamics for Culicoides, as it depends on environmental factors such as temperature and rainfall. Longer seasonal abundance for C. imicula compared to the Obsoletus group can be explained by the species distribution, as C. imicula is limited to the southern parts of Europe where the warm season lasts longer, whereas the Obsoletus group is found further north. The outputs obtained here will be used as input for epidemiological models and can be helpful for determining high risk areas for disease transmission.
Modelling Dietary Exposure to Chemical Components in Heat-Processed Meats

Several chemical compounds that potentially increase the risk of developing cancer in humans are formed during heat processing of meat. Estimating the overall health impact of these compounds in the population requires accurate estimation of the exposure to the chemicals, as well as the probability that different levels of exposure result in disease. The overall goal of this study was to evaluate the impact of variability of exposure patterns and uncertainty of exposure data in burden of disease estimates. We focus on the first phase of burden of disease modelling, i.e. the estimation of exposure to selected compounds in the Danish population, based on concentration and consumption data. One of the challenges that arises in the probabilistic modelling of exposure is the presence of “artificial” zero counts in concentration data due to the detection level of the applied tests. Zeroinflated models, e.g. the Poisson-Lognormal approach, are promising tools to address this obstacle. The exposure estimates can then be applied to dose-response models to quantify the cancer risk.

Outlier Detection in End-User Performance Monitoring - Smart Innovation.

General information
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General information
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Organisations: Department of Applied Mathematics and Computer Science, Statistics and Data Analysis
Contributors: Andersen, J. F., Stockmarr, A., Thyregod, C., Ersbøll, B. K.
Publication date: 2017

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Social disparities in the prevalence of multimorbidity - A register-based population study: A register-based population study

Prevalences of multimorbidity vary between European studies and several methods and definitions are used. In this study we examine the prevalence of multimorbidity in relation to age, gender and educational attainment and the association between physical and mental health conditions and educational attainment in a Danish population. A cross-sectional design was used to study the prevalence of multimorbidity, defined as two or more chronic conditions, and of comorbid physical and mental health conditions across age groups and educational attainment levels among 1,397,173 individuals aged 16 years and older who lived in the Capital Region of Denmark on January 1st, 2012. After calculating prevalence, odds ratios for multimorbidity and mental health conditions were derived from logistic regression on gender, age, age squared, education and number of physical conditions (only for odds ratios for mental health conditions). Odds ratios for having multimorbidity and mental health conditions for each variable were adjusted for all other variables. Multimorbidity prevalence was 21.6%. Half of the population aged 65 and above had multimorbidity, and prevalence was inversely related to educational attainment: 26.9% (95% CI, 26.8-26.9) among those with lower secondary education versus 13.5% (95% CI, 13.5-13.6) among people with postgraduate education. Adjusted odds ratios for multimorbidity were 0.50 (95% CI, 0.49-0.51) for people with postgraduate education, compared to people with lower secondary education. Among all population members, 4.9% (95% CI, 4.9-4.9) had both a physical and a mental health condition, a proportion that increased to 22.6% of people with multimorbidity. Physical and mental health comorbidity was more prevalent in women (6.33%; 95% CI, 6.3-6.4) than men (3.34%; 95% CI, 3.3-3.4) and approximately 50 times more prevalent among older persons than younger ones. Physical and mental health comorbidity was also twice as prevalent among people with lower secondary education than among those with postgraduate education. The presence of a mental health condition was strongly associated with the number of physical conditions; those with five or more physical conditions had an adjusted odds ratio for a mental health condition of 3.93 (95% CI, 3.8-4.1), compared to those with no physical conditions. Multimorbidity prevalence and patterns in the Danish population are comparable to those of other European populations. The high prevalence of mental and physical health conditions highlights the need to ensure that healthcare systems deliver care that takes physical and mental comorbidity into account. Further, the higher prevalence of multimorbidity among persons with low educational attainment emphasizes the importance of having a health care system providing care that is beneficial to all regardless of socioeconomic status.

General information
State: Published
Organisations: Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, Aalborg University, University of Copenhagen
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Scopus rating (2017): CiteScore 2.66 SJR 1.337 SNIP 1.268
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Scopus rating (2016): CiteScore 2.54 SJR 1.431 SNIP 1.303
Web of Science (2016): Impact factor 2.265
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 2.68 SJR 1.445 SNIP 1.358
Web of Science (2015): Impact factor 2.209
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 2.62 SJR 1.429 SNIP 1.439
Web of Science (2014): Impact factor 2.264
BFI (2013): BFI-level 2
Concurrent elevation of CO$_2$, O$_3$ and temperature severely affects oil quality and quantity in rapeseed

Plant oil is an essential dietary and bio-energy resource. Despite this, the effects of climate change on plant oil quality remain to be elucidated. The present study is the first to show changes in oil quality and quantity of four rapeseed cultivars in climate scenarios with elevated [CO$_2$], [O$_3$] and temperature (T) combined and as single factors. The combination of environmental factors resembled IPCC's 'business as usual' emission scenario predicted for late this century. Generally, the climate scenarios reduced the average amounts of the six fatty acids (FAs) analysed, though in some treatments single FAs remained unchanged or even increased. Most reduced was the FA essential for human nutrition, C18:3-ω3, which decreased by 39% and 45% in the combined scenarios with elevated [CO$_2$]+T+[O$_3$] and [CO$_2$]+T, respectively. Average oil content decreased 3–17%. When [CO$_2$] and T were elevated concurrently, the seed biomass was reduced by half, doubling the losses in FAs and oil content. This corresponded to a 58% reduction in the oil yield per hectare, and C18:3-ω3 decreased by 77%. Furthermore, the polyunsaturated FAs were significantly decreased. The results indicate undesirable consequences for production and health benefits of rapeseed oil with future climate change. The results also showed strong interactive effects of CO$_2$, T and O$_3$ on oil quality, demonstrating why prediction of climate effects requires experiments with combined factors and should not be based on extrapolation from single factor experiments.

General information
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Organisations: Department of Environmental Engineering, Department of Applied Mathematics and Computer Science , Statistics and Data Analysis, Department of Chemical and Biochemical Engineering, CHEC Research Centre, Atmospheric Environment, Danish Cancer Society, University of Innsbruck
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Correlations between fatigue and disease duration, disease activity, and pain in patients with rheumatoid arthritis: a systematic review

OBJECTIVES: Rheumatoid arthritis (RA) patients suffer from disabling fatigue but the causes of this condition are unknown. Our aim was to assess which of the variables disease activity, disease duration, and pain is associated with fatigue. METHOD: We conducted a systematic literature search in MEDLINE and EMBASE, followed by selection of studies according to set criteria, data extraction, and statistical analyses of the relationships in RA between fatigue and the following covariates: disease duration, erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), the 28-joint Disease Activity Score (DAS28), swollen to tender joint count ratio (STR), and pain. Linear regression analyses of fatigue regressed on each of the six covariates, and a multiple regression analysis where fatigue was regressed on the six covariates through a forward selection procedure was carried out with construction of correlation measures between fatigue and the covariates. RESULTS: A total of 121 studies were included in the analyses, including > 100 000 RA patients. A high level of fatigue was seen even in well-treated patients, demonstrating fatigue as a major problem in RA. Fatigue was found to be positively correlated with pain, CRP, DAS28, and ESR but not with the STR or disease duration, with pain as the overall domineering factor. CONCLUSIONS: Fatigue has a substantial influence on the lives of RA patients, independent of disease duration. Pain is the domineering factor in the experience and degree of fatigue. Disease activity is positively correlated to fatigue but does not contribute substantially when pain is considered. Optimal pain relief is therefore an important part of the treatment to improve fatigue in RA.

General information
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Organisations: Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, Copenhagen University Hospital, University of Copenhagen
Contributors: Groth Madsen, S., Danneskiold-Samsøe, B., Stockmarr, A., Bartels, E.
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Evaluation of temporal surveillance system sensitivity and freedom from bovine viral diarrhea in Danish dairy herds using scenario tree modelling
The temporal sensitivity of the surveillance system (TemSSe) for Bovine Viral Diarrhea (BVD) in Danish dairy herds was evaluated. Currently, the Danish antibody blocking ELISA is used to test quarterly bulk tank milk (BTM). To optimize the surveillance system as an early warning system, we considered the possibility of using the SVANOVIR ELISA, as this test has been shown to detect BVD-positive herds earlier than the blocking ELISA in BTM tests. Information from data (2010) and outputs from two published stochastic models were fed into a stochastic scenario tree to estimate the TemSSe. For that purpose we considered: the risk of BVD introduction into the dairy population, the ELISA used and the high risk period (HRP) from BVD introduction to testing (at 90 or 365 days). The effect of introducing one persistently infected (PI) calf or one transiently infected (TI) milking cow into 1 (or 8) dairy herd(s) was investigated. Additionally we estimated the confidence in low (PLow) herd prevalence.

**General information**

State: Published  
Organisations: National Veterinary Institute, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, Section for Epidemiology  
Contributors: Foddai, A., Stockmarr, A., Boklund, A.  
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Scopus rating (2017): CiteScore 2.16 SJR 0.934 SNIP 1.108  
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BFI (2016): BFI-level 1  
Scopus rating (2016): CiteScore 1.83 SJR 0.87 SNIP 1.011  
Web of Science (2016): Impact factor 1.75  
Web of Science (2016): Indexed yes  
BFI (2015): BFI-level 1  
Scopus rating (2015): CiteScore 1.86 SJR 0.981 SNIP 1.009  
Web of Science (2015): Impact factor 1.643  
Web of Science (2015): Indexed yes  
BFI (2014): BFI-level 1  
Scopus rating (2014): CiteScore 1.81 SJR 0.943 SNIP 1.018  
Web of Science (2014): Impact factor 1.777  
Web of Science (2014): Indexed yes  
BFI (2013): BFI-level 1  
Scopus rating (2013): CiteScore 1.85 SJR 0.861 SNIP 0.853  
Web of Science (2013): Impact factor 1.743  
ISI indexed (2013): ISI indexed yes  
Web of Science (2013): Indexed yes  
BFI (2012): BFI-level 1  
Scopus rating (2012): CiteScore 1.94 SJR 0.779 SNIP 1.023  
Web of Science (2012): Impact factor 1.861  
ISI indexed (2012): ISI indexed yes  
Web of Science (2012): Indexed yes  
BFI (2011): BFI-level 1  
Scopus rating (2011): CiteScore 2.66 SJR 1.165 SNIP 1.447
Grain protein concentration and harvestable protein under future climate conditions. A study of 108 spring barley accessions

In the present study a set of 108 spring barley (H. vulgare L.) accessions were cultivated under predicted future levels of temperature and [CO2] as single factors and in combination (IPCC, AR5, RCP8.5). Across all genotypes, elevated [CO2] (700 ppm day/night) slightly decreased protein concentration by 5%, while elevated temperature (+5 °C day/night) substantially increased protein concentration by 29%. The combined treatment increased protein concentration across accessions by 8%. This was an increase less than predicted from strictly additive effects of the individual treatments. Despite the increase in grain protein concentration, the decrease in grain yield at combined elevated temperature and elevated [CO2] resulted in 23% less harvestable protein. There was variation in the response of the 108 accessions, which might be exploited to at least maintain if not increase harvestable grain protein under future climate change conditions.

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Web of Science (2017): Impact factor 5.354
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Scopus rating (2016): CiteScore 6.02 SJR 2.859 SNIP 1.717
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Scopus rating (2015): CiteScore 5.97 SJR 2.784 SNIP 1.811
Web of Science (2015): Impact factor 5.677
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Scopus rating (2014): CiteScore 5.93 SJR 2.77 SNIP 2.052
Web of Science (2014): Impact factor 5.526
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 6 SJR 2.656 SNIP 1.952
Web of Science (2013): Impact factor 5.794
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): CiteScore 5.47 SJR 2.619 SNIP 1.929
Web of Science (2012): Impact factor 5.242
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): CiteScore 5.19 SJR 2.631 SNIP 1.865
Web of Science (2011): Impact factor 5.364
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.373 SNIP 1.802
Web of Science (2010): Impact factor 4.818
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 2.382 SNIP 1.7
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 2.234 SNIP 1.521
Scopus rating (2007): SJR 2.304 SNIP 1.666
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 1.847 SNIP 1.392
Scopus rating (2005): SJR 1.748 SNIP 1.623
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 1.676 SNIP 1.439
Scopus rating (2003): SJR 1.682 SNIP 1.567
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 1.41 SNIP 1.332
Scopus rating (2001): SJR 1.315 SNIP 1.256
Web of Science (2001): Indexed yes
Scopus rating (1999): SJR 1.753 SNIP 1.478
Original language: English
Keywords: Climate change, Elevated carbon dioxide, Elevated temperature, Grain protein harvested, Near-infrared spectroscopy, Two-factor treatment
Electronic versions:
Grain_protein_under_future_climate_conditions_of_elevated_temperature_and_carbon_dioxide_A_study_of_108_barley_accessions.pdf
DOIs:
10.1093/jxb/erw033
Source: FindIt
Source-ID: 2292351439
Research output: Research - peer-review › Journal article – Annual report year: 2016
Obesity Prevention in the Nordic Countries

Previous studies have shown that mean BMI and prevalences of overweight/obesity and obesity have increased over the last decades in the Nordic countries, despite highly regulated societies with a focus on obesity prevention. We review recent overweight/obesity and obesity prevention initiatives within four of the five Nordic countries: Sweden, Denmark, Finland, and Iceland. Moreover, we analyze the current situation based on monitoring data on BMI collected in 2011 and 2014, and obtain overall estimates of overweight/obesity and obesity prevalences for the Nordic Region. Data analysis shows that obesity in adults has increased from 2011 to 2014, while no significant changes were found for children. No significant increases were found for mean BMI and overweight/obesity prevalence. Obesity prevention initiatives among the Nordic countries are highly similar although minor differences are present, which is rooted in transnational Nordic cooperation and comparable societal structures.

Spatial Distribution and Abundance of Culicodes Imicola and Obsoletus Group in Europe

General Information
State: Published
Organisations: National Veterinary Institute, Epidemiology, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, Norwegian Veterinary Institute, Institute for Veterinary Public Health, Centre de coopération Internationale en Recherche Agronomique pour le Développement, University of the Balearic Islands, University of Zaragoza, Avia-GIS, University of Zurich

Number of pages: 1
Publication date: 2016
Peer-reviewed: Yes
Event: Abstract from 3rd Conference on Neglected Vectors and Vector-Borne Diseases, Zaragoza, Spain.
Electronic versions: Cuellar_Abstract_Zaragoza2.pdf
Research output: Research - peer-review: Conference abstract for conference – Annual report year: 2017
Spatial distribution and abundance of culicoides imicola and absolutes group in Europe

General information
State: Published
Organisations: National Veterinary Institute, Section for Epidemiology, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, Roskilde University, National Veterinary Institute, Bernhard Nocht Institute for Tropical Medicine, Norwegian Veterinary Institute, Institute for Veterinary Public Health, Centre de cooperation Internationale en Recherche Agronomique pour le Développement, Universite de Strasbourg, EID Méditerranée, Aarhus University, National Veterinary Research Institute
Pages: 65-66
Publication date: 2016

Host publication information
Title of host publication: 3rd Conference on Neglected Vectors and Vector-Borne Diseases (EurNegVec): with MC and WG Meeting of the COST Action TD1303: Abstract book
Place of publication: ZARAGOZA
Publisher: European Science Foundation
Electronic versions:
abstractszaragoza.pdf
Source: PublicationPreSubmission
Source-ID: 124141015
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2016

The fundament of food, crop protein production, is threatened by climate change

General information
State: Published
Organisations: Department of Chemical and Biochemical Engineering, Department of Environmental Engineering, Atmospheric Environment, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, Aarhus University
Publication date: 2016

Publication information
Media of output: Atlas of Science
Year: 2016
Original language: English
Electronic versions:
Ingvordsen_2016_the_fundament_of_food_crop_protein_production_is_threatened_by_climate_change.pdf
URLs:

Bibliographical note
Senest ændret: 03/05/2016
Source: PublicationPreSubmission
Source-ID: 123632088
Research output: Research - peer-review › Net publication - Internet publication – Annual report year: 2016

A 10-day heatwave at flowering superimposed on climate change conditions strongly affects production of 22 barley accessions
Extreme climate events are projected to be among the future most challenging constraints to plant development. Heatwaves as well as floods and droughts cause acute changes in the growth environment determining our primary production (Collins et al., 2013). Europe experienced extreme heatwaves in 2003 and 2006. In 2003, a 21 % decrease in the French wheat production was found from temperatures up to 6 °C above long-term means and precipitation being less than 50 % of the average (Cliais et al., 2005). One strategy to mitigate the this decrease from heatwaves is to identify resilient cultivars and incorporate them in breeding programs.

General information
State: Published
AB0346 Correlation of Disease Duration, Disease Activity and Pain to Fatigue – a Systematic Review

General Information
State: Published
Organisations: Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, Copenhagen University Hospital Frederiksberg and Bispebjerg
Contributors: Groth Madsen, S., Danneskiold-Samsøe, B., Stockmarr, A., Bartels, E.
Pages: 1009
Publication date: 2015
Peer-reviewed: Yes

Publication information
Journal: Annals of the Rheumatic Diseases
Volume: 74
Issue number: Supplement 2
ISSN (Print): 0003-4967
Ratings:
BFI (2019): BFI-level 2
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 8.31 SJR 7.699 SNIP 3.488
Web of Science (2017): Impact factor 12.35
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 8.02 SJR 7.083 SNIP 3.603
Web of Science (2016): Impact factor 12.811
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 7.4 SJR 5.909 SNIP 3.255
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 6.78 SJR 5.505 SNIP 2.887
Web of Science (2014): Impact factor 10.377
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 7.28 SJR 5.166 SNIP 2.889
Web of Science (2013): Impact factor 9.27
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): CiteScore 7.79 SJR 5.031 SNIP 3.114
Web of Science (2012): Impact factor 9.111
ISI indexed (2012): ISI indexed yes
Battling Bluetongue and Schmallenberg virus: Local scale behavior of transmitting vectors

General information
State: Published
Organisations: Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, National Veterinary Institute, Section for Epidemiology
Contributors: Stockmarr, A., Kirkeby, C., Bødker, R.
Publication date: 2015
Media of output: PowerPoint

Event information
Event: World Congress on Infectious Diseases 2015
Location: London, United Kingdom
Electronic versions:
Infectious_Diseases_1008_2015_Anders_Stockmarr.pdf

Research output: Research - peer-review › Conference abstract in journal – Annual report year: 2015

Battling Bluetongue and Schmallenberg virus: Local scale behavior of transmitting vectors

General information
State: Published
Organisations: Department of Applied Mathematics and Computer Science, Statistics and Data Analysis
Contributors: Stockmarr, A.
Pages: 43
Publication date: 2015
Peer-reviewed: Yes

Publication information
Journal: Journal of infectious disease and therapy
Volume: 3
Issue number: 4
Original language: English
Electronic versions:
Challenges for bovine viral diarrhoea virus antibody detection in bulk milk by antibody enzyme-linked immunosorbent assays due to changes in milk production levels

Background: Bovine viral diarrhoea (BVD) is considered eradicated from Denmark. Currently, very few (if any) Danish cattle herds could be infected with BVD virus (BVDV). The Danish antibody blocking enzyme-linked immunosorbent assay (ELISA) has been successfully used during the Danish BVD eradication program, initiated in 1994. During the last decade, the cattle herd size has increased while the prevalence of BVDV has decreased. In this study, we investigated how these changes could affect the performance of the Danish blocking ELISA and of the SVANOVIR® BVDV-Ab indirect ELISA. The latter has successfully been used to eradicate BVD in Sweden. Data (2003–2010) on changes in median herd size and milk production levels, occurrence of viremic animals and bulk milk surveillance were analysed. Additionally, the Danish blocking ELISA and the SVANOVIR ELISA were compared analyzing milk and serum samples. The prevalence of antibody positive milking cows that could be detected by each test was estimated, by diluting positive individual milk samples and making artificial milk pools. Results: During the study period, the median herd size increased from 74 (2003) to 127 cows (2010), while the prevalence of BVDV infected herds decreased from 0.51 to 0.02 %. The daily milk yield contribution of a single seropositive cow to the entire daily bulk milk was reduced from 1.61 % in 2003 to 0.95 % in 2010 due to the increased herd size. It was observed that antibody levels in bulk milk decreased at national level. Moreover, we found that when testing bulk milk, the SVANOVIR® BVDV-Ab can detect a lower prevalence of seropositive lactating cows, compared to the Danish blocking ELISA (0.78 % vs. 50 %). Values in the SVANOVIR® BVDV-Ab better relate to low concentrations of antibody positive milk (R² = 94–98 %), than values in the blocking ELISA (R² = 23–75 %). For sera, the two ELISAs performed equally well. Conclusions: The SVANOVIR ELISA is recommended for analysis of bulk milk samples in the current Danish situation, since infected dairy herds e.g. due to import of infected cattle can be detected shortly after BVDV introduction, when only few lactating cows have seroconverted. In sera, the two ELISAs can be used interchangeably.
Characterization of the bacterial gut microbiota of piglets suffering from new neonatal porcine diarrhoea

Background: In recent years, new neonatal porcine diarrhoea (NNPD) of unknown aetiology has emerged in Denmark. NNPD affects piglets during the first week of life and results in impaired welfare, decreased weight gain, and in the worst-case scenario death. Commonly used preventative interventions such as vaccination or treatment with antibiotics, have a limited effect on NNPD. Previous studies have investigated the clinical manifestations, histopathology, and to some extent, microbiological findings; however, these studies were either inconclusive or suggested that Enterococci, possibly in interaction with Escherichia coli, contribute to the aetiology of NNPD. This study examined ileal and colonic luminal contents of 50 control piglets and 52 NNPD piglets by means of the qPCR-based Gut Microbiotassay and 16 samples by 454 sequencing to study the composition of the bacterial gut microbiota in relation to NNPD. Results: NNPD was associated with a diminished quantity of bacteria from the phyla Actinobacteria and Firmicutes while genus Enterococcus was more than 24 times more abundant in diarrhoeic piglets. The number of bacteria from the phylum Fusobacteria was also doubled in piglets suffering from diarrhoea. With increasing age, the gut microbiota of NNPD affected piglet and control piglets became more diverse. Independent of diarrhoeic status, piglets from first parity sows (gilts) possessed significantly more bacteria from family Enterobacteriaceae and species E. coli, and fewer bacteria from phylum Firmicutes. Piglets born to gilts had 25 times higher odds of having NNPD compared with piglets born to multiparous sows. Finally, the co-occurrence of genus Enterococcus and species E. coli contributed to the risk of having NNPD. Conclusion: The results of this study support previous findings that points towards genus Enterococcus and species E. coli to be involved in the pathogenesis of NNPD. Moreover, the results indicate that NNPD is associated with a disturbed bacterial composition and larger variation between the diarrhoeic piglets.

General information
State: Published
Organisations: National Veterinary Institute, Section for Bacteriology, Pathology and Parasitology, Section for Immunology and Vaccinology, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, Department of Chemical and Biochemical Engineering, Center for BioProcess Engineering, Danish Genome Institute, Danish Agriculture and Food Council
Number of pages: 19
Publication date: 2015
Peer-reviewed: Yes

Publication information
Journal: B M C Veterinary Research
Volume: 11
Issue number: 139
ISSN (Print): 1746-6148
Ratings:
BFI (2019): BFI-level 1
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 2.16 SJR 0.934 SNIP 1.108
Web of Science (2017): Impact factor 1.958
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.83 SJR 0.87 SNIP 1.011
Web of Science (2016): Impact factor 1.75
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 1.86 SJR 0.981 SNIP 1.009
Web of Science (2015): Impact factor 1.643
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 1.81 SJR 0.943 SNIP 1.018
Web of Science (2014): Impact factor 1.777
Fitting a distribution to microbial counts: Making sense of zeroes

The accurate estimation of true prevalence and concentration of microorganisms in foods is an important element of quantitative microbiological risk assessment (QMRA). This estimation is often based on microbial detection and enumeration data. Among such data are artificial zero counts, that originated by chance from contaminated food products. When these products are not differentiated from uncontaminated products that originate true zero counts, the estimates of true prevalence and concentration may be inaccurate. This inaccuracy is especially relevant in situations where highly pathogenic bacteria are involved and where growth can occur along the food pathway. Our aim was to develop a method that provides accurate estimates of concentration parameters and differentiates between artificial and true zeroes, thus also accurately estimating true prevalence.

We first show the disadvantages of using a limit of quantification (LOQ) threshold for the analysis of microbial enumeration data. We show that, depending on the original distribution of concentrations and the LOQ value, it may be incorrect to treat artificial zeroes as censored below a quantification threshold.

Next, a method is developed that estimates the true prevalence of contamination within a food lot and the parameters characterizing the within-lot distribution of concentrations, without assuming a LOQ, and using raw plate count data as an input. Counts resulting both from contaminated and uncontaminated sample units are analysed together. This procedure allows the estimation of the proportion of artificial zeroes among the total of zero counts, and therefore the estimation of true prevalence from enumeration results.
We observe that this method yields best estimates of mean, standard deviation and prevalence at low true prevalence levels and low expected standard deviation. Furthermore, we conclude that the estimation of prevalence and the estimation of the distribution of concentrations are interrelated and therefore should be estimated simultaneously. We also conclude that one of the keys to an accurate characterization of the overall microbial contamination is the correct identification and separation of true and artificial zeroes.

Our method for the analysis of quantitative microbial data shows a good performance in the estimation of true prevalence and the parameters of the distribution of concentrations, which indicates that it is a useful data analysis tool in the field of QMRA.

**General information**

State: Published  
Organisations: National Food Institute, Division of Epidemiology and Microbial Genomics, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis  
Contributors: Ribeiro Duarte, A. S., Stockmarr, A., Nauta, M.  
Pages: 40-50  
Publication date: 2015  
Peer-reviewed: Yes

**Publication information**

Journal: International Journal of Food Microbiology  
Volume: 196  
ISSN (Print): 0168-1605  
Ratings:  
BFI (2019): BFI-level 2  
Web of Science (2019): Indexed yes  
BFI (2018): BFI-level 2  
Web of Science (2018): Indexed yes  
BFI (2017): BFI-level 2  
Scopus rating (2017): CiteScore 3.76 SJR 1.366 SNIP 1.436  
Web of Science (2017): Impact factor 3.451  
Web of Science (2017): Indexed yes  
BFI (2016): BFI-level 2  
Scopus rating (2016): CiteScore 3.97 SJR 1.481 SNIP 1.553  
Web of Science (2016): Indexed yes  
BFI (2015): BFI-level 2  
Scopus rating (2015): CiteScore 4.02 SJR 1.614 SNIP 1.683  
Web of Science (2015): Indexed yes  
BFI (2014): BFI-level 2  
Scopus rating (2014): CiteScore 3.62 SJR 1.493 SNIP 1.695  
Web of Science (2014): Impact factor 3.082  
Web of Science (2014): Indexed yes  
BFI (2013): BFI-level 2  
Scopus rating (2013): CiteScore 3.8 SJR 1.612 SNIP 1.841  
Web of Science (2013): Impact factor 3.155  
ISI indexed (2013): ISI indexed yes  
Web of Science (2013): Indexed yes  
BFI (2012): BFI-level 2  
Scopus rating (2012): CiteScore 3.7 SJR 1.603 SNIP 1.705  
Web of Science (2012): Impact factor 3.425  
ISI indexed (2012): ISI indexed yes  
Web of Science (2012): Indexed yes  
BFI (2011): BFI-level 2  
Scopus rating (2011): CiteScore 3.63 SJR 1.607 SNIP 1.713  
Web of Science (2011): Impact factor 3.327
Flere overvægtige danske kvinder

General information
State: Published
Organisations: National Food Institute, Division of Risk Assessment and Nutrition, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis
Contributors: Matthiessen, J., Stockmarr, A.
Number of pages: 10
Publication date: 2015
Peer-reviewed: No

Publication information
Journal: E-artikel fra DTU Fødevareinstitutet
Volume: 2015
Issue number: 2
ISSN (Print): 1904-5581
Original language: Danish
Electronic versions:
Flere_overvgtige_danske_kvinder_011015.pdf
Source: PublicationPreSubmission
Source-ID: 103606159

Research output: Research - peer-review › Journal article – Annual report year: 2015
GWAS of Barley Phenotypes Established Under Future Climate Conditions of Elevated Temperature, CO2, O3 and Elevated Temperature and CO2 Combined

Climate change is likely to decrease crop yields worldwide. Developing climate resilient cultivars is one way to combat this production scarcity, however, little is known of crop response to future climate conditions and in particular the variability within crops. In Scandinavia, barley is widely cultivated, but yields have stagnated since the start of this century. In this study we cultivated 138 spring barley accessions in a climate phytotron under four treatments mimicking forecasted levels of temperature, carbon dioxide concentration ([CO2]) and ozone ([O3]) at the end of the 21st century1. The ambient control had 19/12°C (day/night) and [CO2] at 385ppm. Three single-factor treatments had elevated temperature +5°C day/night, [CO2] at 700ppm or [O3] at 120 ppb, and in a two-factor treatment the combination of elevated temperature and [CO2] was applied. Treatment effects were assessed on grain yield, grain protein concentration, grain protein harvested, number of grains, number of ears, aboveground vegetative biomass and harvest index. In addition, stability of the production was calculated over the applied treatments for the assessed parameters. In the climate scenario of elevated temperature and [CO2] the grain yield of barley decreased 29% and harvested grain protein declined 22%. Vast variation was identified among the individual barley accessions, which should be exploited by plant breeders in the development of climate resilient cultivars. A genome-wide association study (GWAS) of recorded phenotypes and 3967 SNP-markers identified 60 marker-trait associations (-logp>2.95)2. Markers were found associated with grain yield under all three single factor treatments temperature, [CO2] and [O3], as well as with stability over treatments. To our knowledge, this is the first study that evaluates numerous barley accessions under future climate conditions and identifies candidate markers for abiotic stress tolerance - markers that could be used in the development of cultivars to secure future primary production.

General information
State: Published
Organisations: Department of Chemical and Biochemical Engineering, Ecosystems Programme, Department of Informatics and Mathematical Modeling, University of Kassel, University of Copenhagen, MTT Agrifood Research, Nordic Seed A/S, Nordic Genetic Resource Center, Technical University of Denmark
Number of pages: 2
Pages: 164-165
Publication date: 2015
Peer-reviewed: Yes

Publication information
Journal: Procedia Environmental Sciences
Volume: 29
ISSN (Print): 1878-0296
Ratings:
Web of Science (2019): Indexed yes
Web of Science (2018): Indexed yes
Web of Science (2017): Indexed yes
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
Original language: English
Electronic versions:
filestore.pdf
DOIs:
10.1016/j.proenv.2015.07.241
Source: FindIt
Source-ID: 2280646979
Research output: Research - peer-review ; Journal article – Annual report year: 2015

IC3 and IC4 Trains Under Risk of Blocking their Wheels

General information
State: Published
Organisations: Department of Applied Mathematics and Computer Science , Statistics and Data Analysis
Contributors: Stockmarr, A.
Publication date: 2015
Media of output: PowerPoint

Event information
Event: Big Data, Data Warehousing, and Data Analytics
Model for TampImp-DeltaSigmaH Interaction.

General information
State: Published
Organisations: Department of Applied Mathematics and Computer Science, Statistics and Data Analysis
Contributors: Spooner, M. P., Stockmarr, A., Thyregod, C., Ersbøll, B. K.
Number of pages: 40
Publication date: 2015

Publication information
Publisher: DTU Compute
Original language: English

Bibliographical note
Confidential report, not accessible to the public.
Research output: Communication › Report – Annual report year: 2015

SigmaH for Switches and Crossings

General information
State: Published
Organisations: Department of Applied Mathematics and Computer Science, Statistics and Data Analysis
Contributors: Spooner, M. P., Thyregod, C., Stockmarr, A., Ersbøll, B. K.
Number of pages: 29
Publication date: 2015

Publication information
Publisher: DTU Compute
Original language: English

Bibliographical note
Confidential report, not accessible to the public.
Research output: Communication › Report – Annual report year: 2015

Significant decrease in yield under future climate conditions: Stability and production of 138 spring barley accessions
The response in production parameters to projected future levels of temperature, atmospheric carbondioxide ([CO2]), and ozone ([O3]) was investigated in 138 spring barley accessions. The comprehensive setof landraces, cultivars, and breeder-liñes, were during their entire life cycle exposed to a two-factor treat-ment of combined elevated temperature (+5°C day/night) and [CO2] (700 ppm), as well as single-factortreatments of elevated temperature (+5°C day/night), [CO2] (700 ppm), and [O3] (100–150 ppb). Thecontrol treatment was equivalent to present average South Scandinavian climate (temperature: 19/12°C(day/night), [CO2]: 385 ppm). Overall grain yield was found to decrease 29% in the two-factor treatmentwith concurrent elevation of [CO2] and temperature, and this response could not be predicted from theresults of treatments with elevated [CO2] and temperature as single factors, where grain yield increased16% and decreased 56%, respectively. Elevated [O3] was found to decrease grain yield by 15%. Substantial variation in response to the applied climate treatments was found between the accessions. The resultsrevealed landraces, cultivars, and breeder-lines with phenotypes applicable for breeding towards stableand high yield under future climate conditions. Further, we suggest identifying resources for breedingunder multifactor climate conditions, as single-factor treatments did not accurately forecast the response,when factors were combined.

General information
State: Published
Organisations: Department of Chemical and Biochemical Engineering, Ecosystems Programme, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, University of Kassel, University of Copenhagen, MTT Agrifood Research, Nordic Seed A/S, Nordic Genetic Resource Center
Pages: 105-113
Publication date: 2015
Peer-reviewed: Yes

Publication information
Journal: European Journal of Agronomy
Volume: 63
ISSN (Print): 1161-0301
Ratings:
BFI (2019): BFI-level 2
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.94 SJR 1.335 SNIP 1.828
Web of Science (2017): Impact factor 3.192
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 4.01 SJR 1.355 SNIP 2.08
Web of Science (2016): Impact factor 3.757
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 3.59 SJR 1.476 SNIP 2.149
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 3.38 SJR 1.393 SNIP 1.913
Web of Science (2014): Impact factor 2.704
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 3.31 SJR 1.415 SNIP 1.874
Web of Science (2013): Impact factor 2.918
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): CiteScore 3.47 SJR 1.361 SNIP 2.154
Web of Science (2012): Impact factor 2.8
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): CiteScore 2.99 SJR 1.376 SNIP 2.251
Web of Science (2011): Impact factor 2.477
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 1.435 SNIP 2.09
Web of Science (2010): Impact factor 2.455
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 1.297 SNIP 1.594
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 1.234 SNIP 1.749
Scopus rating (2007): SJR 0.862 SNIP 1.457
Scopus rating (2006): SJR 1.273 SNIP 1.791
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 1.24 SNIP 1.672
Scopus rating (2004): SJR 1.139 SNIP 1.55
Scopus rating (2003): SJR 0.711 SNIP 1.144
A Comparison between Two Simulation Models for Spread of Foot-and-Mouth Disease

Two widely used simulation models of foot-and-mouth disease (FMD) were used in order to compare the models’ predictions in term of disease spread, consequence, and the ranking of the applied control strategies, and to discuss the effect of the way disease spread is modeled on the predicted outcomes of each model. The DTU-DADS (version 0.100), and ISP (version 2.001.11) were used to simulate a hypothetical spread of FMD in Denmark. Actual herd type, movements, and location data in the period 1st October 2006 and 30th September 2007 was used. The models simulated the spread of FMD using 3 different control scenarios: 1) A basic scenario representing EU and Danish control strategies, 2) pre-emptive depopulation of susceptible herds within a 500 meters radius around the detected herds, and 3) suppressive vaccination of susceptible herds within a 1,000 meters radius around the detected herds. Depopulation and
vaccination started 14 days following the detection of the first infected herd. Five thousand index herds were selected randomly, of which there were 1,000 cattle herds located in high density cattle areas and 1,000 in low density cattle areas, 1,000 swine herds located in high density swine areas and 1,000 in low density swine areas, and 1,000 sheep herds. Generally, DTU-DADS predicted larger, longer duration and costlier epidemics than ISP, except when epidemics started in cattle herds located in high density cattle areas. ISP supported suppressive vaccination rather than pre-emptive depopulation, while DTU-DADS was indifferent to the alternative control strategies. Nonetheless, the absolute differences between control strategies were small making the choice of control strategy during an outbreak to be most likely based on practical reasons.

**General information**

**State:** Published  
**Organisations:** National Veterinary Institute, Section for Epidemiology, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, Dynamical Systems  
**Contributors:** Hisham Beshara Halasa, T., Boklund, A., Stockmarr, A., Enøe, C., Christiansen, L. E.  
**Number of pages:** 8  
**Publication date:** 2014  
**Peer-reviewed:** Yes

**Publication information**

**Journal:** P L o S One  
**Volume:** 9  
**Issue number:** 3  
**Article number:** e92521  
**ISSN (Print):** 1932-6203  
**Ratings:**  
- BFI (2019): BFI-level 1  
- Web of Science (2019): Indexed yes  
- BFI (2018): BFI-level 1  
- Web of Science (2018): Indexed yes  
- BFI (2017): BFI-level 1  
- Scopus rating (2017): CiteScore 3.01 SJR 1.164 SNIP 1.111  
- Web of Science (2017): Indexed yes  
- BFI (2016): BFI-level 1  
- Scopus rating (2016): CiteScore 3.11 SJR 1.236 SNIP 1.101  
- Web of Science (2016): Indexed yes  
- BFI (2015): BFI-level 1  
- Scopus rating (2015): CiteScore 3.32 SJR 1.427 SNIP 1.136  
- Web of Science (2015): Indexed yes  
- BFI (2014): BFI-level 1  
- Scopus rating (2014): CiteScore 3.54 SJR 1.559 SNIP 1.148  
- Web of Science (2014): Indexed yes  
- BFI (2013): BFI-level 1  
- Scopus rating (2013): CiteScore 3.94 SJR 1.772 SNIP 1.153  
- ISI indexed (2013): ISI indexed yes  
- Web of Science (2013): Indexed yes  
- BFI (2012): BFI-level 1  
- Scopus rating (2012): CiteScore 4.15 SJR 1.982 SNIP 1.156  
- Web of Science (2012): Impact factor 3.73  
- ISI indexed (2012): ISI indexed yes  
- Web of Science (2012): Indexed yes  
- BFI (2011): BFI-level 1  
- Scopus rating (2011): CiteScore 4.58 SJR 2.425 SNIP 1.233  
- Web of Science (2011): Impact factor 4.092  
- ISI indexed (2011): ISI indexed no  
- Web of Science (2011): Indexed yes  
- BFI (2010): BFI-level 1  
- Scopus rating (2010): SJR 2.705 SNIP 1.178  
- Web of Science (2010): Impact factor 4.111
Danish children born to parents with lower levels of education are more likely to become overweight

AIM:
Little is known about whether the socio-economic status of parents is linked to their children becoming overweight. This study examined the association between parents’ educational level and overweight Danish children in a nationally representative sample.

METHODS:
Body mass index was calculated for a random sample of 512 children aged from four to 14 from the Danish National Survey of Diet and Physical Activity 2005-2008. Their parents provided weight and height data during an interview, together with details of their own educational level. Children were classified as overweight/obese in accordance with the International Obesity Task Force. Frequency estimates of prevalence and logistic regression models were used to correlate childhood overweight/obesity with the mothers’ and fathers’ educational levels as the main outcome measures.

RESULTS:
Danish mothers tended to be more highly educated than fathers and their educational level was inversely associated with their child being overweight, especially if it was a boy. However, the highest educational level of the parents was the only significant educational variable, suggesting that education was associated with overweight children irrespective of the gender of the parent.

CONCLUSION:
Public health initiatives should target parents with low educational levels to prevent, and reduce, social inequality in overweight children.

General information
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Organisations: National Food Institute, Division of Nutrition, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis
Contributors: Matthiessen, J., Stockmarr, A., Fagt, S., Knudsen, V. K., Biltoft-Jensen, A. P.
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Web of Science (2019): Indexed yes
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 1.53 SJR 0.834 SNIP 0.688
Web of Science (2017): Impact factor 2.58
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.21 SJR 0.976 SNIP 0.797
Web of Science (2016): Impact factor 2.043
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 1.32 SJR 1.021 SNIP 1.03
Web of Science (2015): Impact factor 1.647
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 1.59 SJR 0.123 SNIP 0.957
Web of Science (2014): Impact factor 1.674
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 1.95 SJR 0.122 SNIP 1.168
Web of Science (2013): Impact factor 1.842
ISI indexed (2013): ISI indexed yes
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Scopus rating (2012): CiteScore 1.83 SJR 0.111 SNIP 1.058
Web of Science (2012): Impact factor 1.974
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 1.81 SJR 0.105 SNIP 0.996
Web of Science (2011): Impact factor 2.073
ISI indexed (2011): ISI indexed yes
BFI (2010): B FI-level 1
Scopus rating (2010): SJR 0.104 SNIP 1.005
Web of Science (2010): Impact factor 1.955
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.682 SNIP 0.926
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.872 SNIP 1.793
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.759 SNIP 1.346
Scopus rating (2006): SJR 0.546 SNIP 1.04
Scopus rating (2005): SJR 0.599 SNIP 0.896
Scopus rating (2004): SJR 0.399 SNIP 0.478
Scopus rating (2003): SJR 0.256 SNIP 0.436
Scopus rating (2002): SJR 0.757 SNIP 1.234
Scopus rating (2001): SJR 0.622 SNIP 0.991
Scopus rating (2000): SJR 0.323 SNIP 0.446
Scopus rating (1999): SJR 0.448 SNIP 0.543
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Research output: Research - peer-review › Journal article – Annual report year: 2014
Factors influencing observed and self-reported functional ability in women with chronic widespread pain: A cross-sectional study

**Objective:** To evaluate the relationships between key outcome variables, classified according to the International Classification of Functioning, Disability and Health (ICF), and observed and self-reported functional ability in patients with chronic widespread pain.

**Design:** Cross-sectional with systematic data collection in a clinical setting. Subjects: A total of 257 consecutively enrolled women with chronic widespread pain.

**Methods:** Multidimensional assessment using self-report and observation-based assessment tools identified to cover ICF categories included in the brief ICF Core Set for chronic widespread pain.

**Results:** Relationships between ICF variables and observed functional ability measured with the Assessment of Motor and Process Skills (AMPS) were few. Out of 36 relationships analysed, only 4 ICF variables showed a moderate correlation with the AMPS motor ability measure. A moderate to strong correlation between numerous ICF variables and self-reported functioning was noted. Multivariate regression modelling supported significant contributions from pain and psychosocial variables to the variability in self-reported functional ability, but not to the variability in AMPS ability measures.

**Conclusion:** Observation-based assessment of functional ability in patients with chronic widespread pain is less influenced by pain and psychosocial factors than are self-reported evaluations. Valid observation-based assessment tools, such as the AMPS, should be included in clinical evaluation and future research addressing functional outcomes in this patient population.
Background
Neonatal diarrhea is a multifactorial condition commonly present on pig farms and leads to economic losses due to increased morbidity and mortality of piglets. Immature immune system and lack of fully established microbiota at birth predispose neonatal piglets to infection with enteric pathogens. The microorganisms that for decades have been associated with enteritis and diarrhea in suckling piglets are: rotavirus A, coronavirus, enterotoxigenic Escherichia coli (ETEC), Clostridium perfringens type C, Cryptosporidium spp., Giardia spp., Cystoisospora suis and Strongyloides ransomi. However, in recent years, the pig industry has experienced an increased number of neonatal diarrhea cases in which the above mentioned pathogens are no longer detected. Potentially pathogenic bacteria have recently received focus in the research on the possible etiology of neonatal diarrhea not caused by common pathogens. The primary aim of this study was to investigate the role of E. coli, Enterococcus spp., C. perfringens and C. difficile in the pathogenesis of neonatal porcine diarrhea with no established casual agents. Fluorescence in situ hybridization with oligonucleotide
probes was applied on the fixed intestinal tissue samples from 51 diarrheic and 50 non-diarrheic piglets collected from four Danish farms during outbreaks of neonatal diarrhea not caused by well-known enteric pathogens. Furthermore, an association between the presence of these bacteria and histological lesions was evaluated.

Results
The prevalence of fluorescence signals specific for E. coli, C. perfringens and C. difficile was similar in both groups of piglets. However, Enterococcus spp. was primarily detected in the diarrheic piglets. Furthermore, adherent bacteria were detected in 37 % diarrheic and 14 % non-diarrheic piglets. These bacteria were identified as E. coli and Enterococcus spp. and their presence in the intestinal mucosa was associated with histopathological changes.

Conclusions
The results of this study showed that simultaneous colonization of the intestinal mucosa by adherent non-ETEC E. coli and Enterococcus spp. can be involved in the pathogenesis of neonatal porcine diarrhea. These bacteria should be considered in diagnosis of diarrhea in piglets, when detection of common, well-known enteric agents is unsuccessful.

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Organisations: National Veterinary Institute, Section for Bacteriology, Pathology and Parasitology, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis
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Web of Science (2018): Indexed yes
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Scopus rating (2017): CiteScore 2.16 SJR 0.934 SNIP 1.108
Web of Science (2017): Impact factor 1.958
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.83 SJR 0.87 SNIP 1.011
Web of Science (2016): Impact factor 1.75
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 1.86 SJR 0.981 SNIP 1.009
Web of Science (2015): Impact factor 1.643
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 1.81 SJR 0.943 SNIP 1.018
Web of Science (2014): Impact factor 1.777
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 1.85 SJR 0.861 SNIP 0.853
Web of Science (2013): Impact factor 1.743
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 1.94 SJR 0.779 SNIP 1.023
Web of Science (2012): Impact factor 1.861
ISI indexed (2012): ISI indexed yes
Quantitative assessment of the risk of introduction of bovine viral diarrhea virus in Danish dairy herds

A quantitative risk assessment was carried out to estimate the likelihood of introducing bovine viral diarrhea virus (BVDV) in Danish dairy herds per year and per trimester, respectively. The present study gives important information on the impact of risk mitigation measures and sources of uncertainty due to lack of data. As suggested in the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement), the OIE Terrestrial Animal Health Code was followed for a transparent science-based risk assessment. Data from 2010 on imports of live cattle, semen, and embryos, exports of live cattle, as well as use of vaccines were analyzed. Information regarding the application of biosecurity measures, by veterinarians and hoof trimmers practicing in Denmark and in other countries, was obtained by contacting several stakeholders, public institutions, and experts. Stochastic scenario trees were made to evaluate the importance of various BVDV introduction routes. With the current surveillance system, the risk of BVDV introduction was estimated to one or more introductions within a median of nine years (3–59). However, if all imported animals were tested and hoof trimmers always disinfected the tools used abroad, the risk could be reduced to one or more introductions within 33 years (8–200). Results of this study can be used to improve measures of BVD surveillance and prophylaxis in Danish dairy herds.

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Organisations: National Veterinary Institute, Section for Epidemiology, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, Seges Knowledge Centre for Agriculture
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Scopus rating (2017): CiteScore 2.26 SJR 1.144 SNIP 1.31
Web of Science (2017): Impact factor 1.924
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 2.2 SJR 1.249 SNIP 1.361
Web of Science (2016): Impact factor 1.987
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 2.1 SJR 1.282 SNIP 1.177
Web of Science (2015): Impact factor 2.182
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 2.37 SJR 1.27 SNIP 1.407
Web of Science (2014): Impact factor 2.167
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 2.49 SJR 1.264 SNIP 1.529
Web of Science (2013): Impact factor 2.506
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): CiteScore 2.45 SJR 1.265 SNIP 1.436
Web of Science (2012): Impact factor 2.389
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): CiteScore 2.24 SJR 1.194 SNIP 1.295
Web of Science (2011): Impact factor 2.046
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 1.156 SNIP 1.284
Web of Science (2010): Impact factor 2.07
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 1.032 SNIP 1.338
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 1.056 SNIP 1.258
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.009 SNIP 1.353
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 1.06 SNIP 1.277
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 0.931 SNIP 1.414
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 0.812 SNIP 1.146
Web of Science (2004): Indexed yes
Stochastic simulation modeling to determine time to detect Bovine Viral Diarrhea antibodies in bulk tank milk

A stochastic simulation model was developed to estimate the time from introduction of Bovine Viral Diarrhea Virus (BVDV) in a herd to detection of antibodies in bulk tank milk (BTM) samples using three ELISAs. We assumed that antibodies could be detected, after a fixed threshold prevalence of seroconverted milking cows was reached in the herd. Different thresholds were set for each ELISA, according to previous studies. For each test, antibody detection was simulated in small (70 cows), medium (150 cows) and large (320 cows) herds. The assays included were: (1) the Danish blocking ELISA, (2) the SVANOVIR®BVDV-Ab ELISA, and (3) the ELISA BVD/MD p80 Institute Pourquier. The validation of the model was mainly carried out by comparing the predicted incidence of persistently infected (PI) calves and the predicted detection time, with records from a BVD infected herd. Results showed that the SVANOVIR, which was the most efficient ELISA, could detect antibodies in the BTM of a large herd 280 days (95% prediction interval: 218; 568) after a transiently infected (TI) milking cow has been introduced into the herd. The estimated time to detection after introduction of one PI calf was 111 days (44; 605). With SVANOVIR ELISA the incidence of PIs and dead born calves could be limited and the impact of the disease on the animal welfare and income of farmers (before detection) could be minimized. The results from the simulation modeling can be used to improve the current Danish BVD surveillance program in detecting early infected herds.

General information
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Organisations: National Veterinary Institute, Section for Epidemiology, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, Seges Knowledge Centre for Agriculture
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BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 2.26 SJR 1.144 SNIP 1.31
Web of Science (2017): Impact factor 1.924
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 2.2 SJR 1.249 SNIP 1.361
Web of Science (2016): Impact factor 1.987
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
The Relationship between Mechanical Hyperalgesia Assessed by Manual Tender Point Examination and Disease Severity in Patients with Chronic Widespread Pain: A Cross-Sectional Study

The clinical utility of tender point (TP) examination in patients reporting chronic widespread pain (CWP) is the subject of contemporary debate. The objective of this study was to assess the relationship between mechanical hyperalgesia assessed by manual TP examination and clinical disease severity. 271 women with CWP were recruited from a clinical setting. Data collection included patient-reported symptoms, health-related quality of life variables, and observation-based measures of functional ability, muscle strength, 6-minute walk, and pressure pain thresholds measured by cuff algometry. TP examination was conducted according to ACR-guidelines. Relationships between disease variables and TP count (TPC) were analyzed with logistic regression in a continuum model, allowing the TPC to depend on the included disease variables and two regression models carried out for a TPC threshold level, varying between 1 and 17. The threshold analyses indicated a TPC threshold at 8, above which a large number of disease variables became consistently significant explanatory factors, whereas none of the disease variables reached a significance level in the continuum model. These results support the premise that the presence of mechanical hyperalgesia influences symptomatology in CWP and that the severity of clinical expression is related to a threshold of TPs, rather than being part of a continuum.

General information
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Organisations: Department of Applied Mathematics and Computer Science, Statistics and Data Analysis, Oregon Health and Science University, Copenhagen University Hospital
Contributors: Amris, K., Wæhrens, E. E., Jespersen, A., Stockmarr, A., Bennett, R., Bliddal, H., Danneskiold-Samsoe, B.
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BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 1.8 SJR 0.645 SNIP 0.767
Web of Science (2017): Indexed yes
Scopus rating (2016): CiteScore 2.42 SJR 0.667 SNIP 0.883
Scopus rating (2015): CiteScore 3.19 SJR 1.253 SNIP 1.361
Scopus rating (2014): CiteScore 3.15 SJR 0.822 SNIP 1.018
Scopus rating (2013): CiteScore 2.72 SJR 0.796 SNIP 1.103
ISI indexed (2013): ISI indexed no
Scopus rating (2012): CiteScore 1.67 SJR 0.463 SNIP 0.756
ISI indexed (2012): ISI indexed no
Scopus rating (2011): CiteScore 0.8 SJR 0.283 SNIP 0.521
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Trends in overweight and obesity in Danish children and adolescents: 2000-2008 – exploring changes according to parental education

Aims: To examine the hypotheses that an overall levelling off in the prevalence of overweight and obesity during the period 2000-2008 has occurred, and that increasing social inequality in overweight and obesity exists in a nationally representative sample of Danish children and adolescents.

Methods: The population comprised a random sample of 1849 children aged 4-14 years who participated in the Danish National Survey of Diet and Physical Activity in 2000-2002, 2003-2004 and 2005-2008. Parental education was chosen as an indicator of children's socioeconomic status. Body mass index (BMI) was calculated from parent-reported weight and height. Subjects were classified as overweight and obese according to the International Obesity Task Force age- and gender-specific BMI cut-off values. Crude prevalence estimates and logistic regression models were used to analyse trends in overweight and obesity as the main outcome measures.

Results: An increase was found in the crude prevalence of overweight (including obesity) in boys (12.8-21.7%, p = 0.0006), but not in girls (17.6-15.9%, p = 0.56), between 2000-2002 and 2005-2008. The prevalence of overweight increased significantly in boys of parents with low educational level only. A strong inverse social gradient in overweight and obesity was documented for boys and girls during the whole survey period.

Conclusions: The present study showed an increase in the prevalence of overweight in Danish boys, but not in girls. This increase was due to increasing social inequality in overweight among boys. Public health initiatives aimed at preventing and reducing overweight and obesity should consider gender difference and especially target boys with parents of low educational level.
Cell-Mediated and Humoral Immune Responses after Immunization of Calves with a Recombinant Multiantigenic Mycobacterium avium subsp. paratuberculosis Subunit Vaccine at Different Ages

Neonates and juvenile ruminants are very susceptible to paratuberculosis infection. This is likely due to a high degree of exposure from their dams and an immature immune system. To test the influence of age on vaccine-induced responses, a cocktail of recombinant Mycobacterium avium subsp. paratuberculosis proteins (MAP0217, MAP1508, MAP3701c, MAP3783, and MAP1609c/Ag85B) was formulated in a cationic liposome adjuvant (CAF01) and used to vaccinate animals of different ages. Male jersey calves were divided into three groups that were vaccinated at 2, 8, or 16 weeks of age and boosted twice at weeks 4 and 12 relative to the first vaccination. Vaccine-induced immune responses, the gamma interferon (IFN-γ) cytokine secretion and antibody responses, were followed for 20 weeks. In general, the specific responses were significantly elevated in all three vaccination groups after the first booster vaccination with no or only a minor effect from the second booster. However, significant differences were observed in the immunogenicity levels of the different proteins, and it appears that the older age group produced a more consistent IFN-γ response. In contrast, the humoral immune response is seemingly independent of vaccination age as we found no difference in the IgG1 responses when we compared the three vaccination groups. Combined, our results suggest that an appropriate age of vaccination should be considered in vaccination protocols and that there is a possible interference of vaccine-induced immune responses with weaning (week 8).
Dynamic changes in antibody levels as an early warning of Salmonella Dublin in bovine dairy herds

Salmonella Dublin is a bacterium that causes disease and production losses in cattle herds. In Denmark, a surveillance and control program was initiated in 2002 to monitor and reduce the prevalence of Salmonella Dublin. In dairy herds, the surveillance includes herd classification based on bulk tank milk measurements of antibodies directed against Salmonella Dublin at 3-mo intervals. In this study, an “alarm herd” concept, based on the dynamic progression of these repeated measurements, was formulated such that it contains predictive power for Salmonella Dublin herd classification change from “likely free of infection” to “likely infected” in the following quarter of the year, thus warning the farmer 3mo earlier than the present system. The alarm herd concept was defined through aberrations from a stable development over time of antibody levels. For suitable parameter choices, alarm herd status was a positive predictor for Salmonella Dublin status change in dairy herds, in that alarm herds had a higher risk of changing status in the following quarter compared with nonalarm herds. This was despite the fact that both alarm and nonalarm herds had antibody levels that did not indicate the herds being “likely infected” according to the existing classification system in the present quarter. The alarm herd concept can be used as a new early warning element in the existing surveillance program. Additionally, to improve accuracy of herd classification, the alarm herd concept could be incorporated into a model including other known risk factors for change in herd classification. Furthermore, the model could be extended to other diseases monitored in similar ways.
Increasing social inequality in overweight in Danish boys

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Making sense of zeros: impact on human health risk estimates

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Persistence of low-pathogenic H5N7 and H7N1 avian influenza subtypes in filtered natural waters

Wild aquatic birds are the natural reservoir of avian influenza virus (AIV), and the virus is transmitted among birds through a fecal-oral route. Infected birds excrete significant amounts of AIV into the environment, and thereby sustain the circulation of AIV in the bird populations. Improved knowledge on the influence of environmental factors on the persistence of AIV in natural habitats would be valuable for risk assessments. The presented work investigated the persistence of two low-pathogenic AIV subtypes in natural water samples. The study included two AIVs formerly isolated from wild ducks, which were suspended in filtered natural fresh, brackish or sea water with salinity of 0, 8000 and 20,000 parts per million (ppm), respectively. Also sterilized brackish and sea waters were included in order to examine the influence of microbial flora on virus persistence. All water samples were incubated at temperatures representative for seasonal variation of ambient temperatures in Northern Europe (4, 17 and 25°C). The results showed a clear correlation between persistence of viral infectivity and temperature, salinity and presence of microbial flora. While independent of virus subtype, the persistence of infectivity was negatively affected by increased temperature, salinity as well as presence of natural microbial flora. The study provides insight on impact of essential physical, chemical and biological parameters on persistence of AIV in aquatic environments. Studies determining the importance of additional environmental parameters and the detailed mechanisms of microbial inactivation of AIV should be encouraged.

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Web of Science (2018): Indexed yes
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Scopus rating (2017): CiteScore 2.7 SJR 1.175 SNIP 1.241
Web of Science (2017): Impact factor 2.524
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 2.65 SJR 1.363 SNIP 1.206
Web of Science (2016): Impact factor 2.628
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 2.56 SJR 1.413 SNIP 1.21
Web of Science (2015): Impact factor 2.564
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 2.54 SJR 1.291 SNIP 1.256
Web of Science (2014): Impact factor 2.511
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 3 SJR 1.459 SNIP 1.471
Web of Science (2013): Impact factor 2.726
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
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Scopus rating (2012): CiteScore 3.18 SJR 1.441 SNIP 1.569
Web of Science (2012): Impact factor 3.127
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): CiteScore 3.27 SJR 1.56 SNIP 1.729
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ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 1.39 SNIP 1.474
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Web of Science (2010): Indexed yes
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 1.309 SNIP 1.466
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 1.164 SNIP 1.29
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.048 SNIP 1.315
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Scopus rating (2006): SJR 1.03 SNIP 1.396
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 1.089 SNIP 1.259
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Web of Science (2003): Indexed yes
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Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 0.828 SNIP 1.051
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PMWS development in pigs from affected farms in Spain and Denmark

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Contributors: Stockmarr, A.
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PMWS development in pigs from affected farms in Spain and Denmark

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PMWS Development in Pigs from Affected Farms in Spain and Denmark

Postweaning multisystemic wasting syndrome (PMWS) is a worldwide spread condition that affects pigs in nursery and/or fattening units, and is considered to have a severe economic impact on swine production. The main clinical sign of PMWS is wasting, but can also include pallor of the skin, icterus, respiratory distress and diarrhoea. The main essential infectious agent for PMWS development is porcine circovirus type 2 (PCV2), but the exact cause of PMWS is still unclear. PCV2 is present in most pig herds, but the occurrence of PMWS is more sporadic, and it has been difficult to reproduce PMWS by inoculating PCV2 alone. However, studies where co-infections have been applied have been more successful. Based on this, we modeled PMWS development based on longitudinal data on antibodies and PMWS status from herds in Denmark and Spain, where presence of a range of pathogens were considered as explanatory variables in the form of maternal immunity and the occurrence of seroconversion against the considered pathogens. However, maternal immunity could not be measured from mother animals due to cross fostering, no time points for seroconversion was available, and no case/control status could be assigned as PMWS do not have an ‘infectious period’ after which animals may be assigned control status. The talk will concentrate on the framework in which this was handled, which may be translated to similar settings for similar studies. We found that seroconversion towards PCV2 and Lawsonia intracellularis had a significant impact on PMWS in the Danish data, but it appears that the effect is positive, in the sense that seroconverted animals were less likely to develop PMWS. A number of maternal immunities also significantly affected PMWS development. Furthermore it was uncovered that most of these effects would not have been detected if pathogens were considered by themselves and not simultaneously.

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Quantifying Dispersal of European Culicoides (Diptera: Ceratopogonidae) Vectors between Farms Using a Novel Mark-Release-Recapture Technique

Studying the dispersal of small flying insects such as Culicoides constitutes a great challenge due to huge population sizes and lack of a method to efficiently mark and objectively detect many specimens at a time. We here describe a novel mark-release-recapture method for Culicoides in the field using fluorescein isothiocyanate (FITC) as marking agent without anaesthesia. Using a plate scanner, this detection technique can be used to analyse thousands of individual Culicoides specimens per day at a reasonable cost. We marked and released an estimated 853 specimens of the Pulicaris group and 607 specimens of the Obsoletus group on a cattle farm in Denmark. An estimated 9,090 (8,918–9,260) Obsoletus group specimens and 14,272 (14,194–14,448) Pulicaris group specimens were captured in the surroundings and subsequently analysed. Two (0.3%) Obsoletus group specimens and 28 (4.6%) Pulicaris group specimens were
recaptured. The two recaptured Obsoletus group specimens were caught at the release point on the night following release. Eight (29%) of the recaptured Pulicaris group specimens were caught at a pig farm 1,750 m upwind from the release point. Five of these were recaptured on the night following release and the three other were recaptured on the second night after release. This is the first time that movement of Culicoides vectors between farms in Europe has been directly quantified. The findings suggest an extensive and rapid exchange of disease vectors between farms. Rapid movement of vectors between neighboring farms may explain the high rate of spatial spread of Schmallenberg and bluetongue virus (BTV) in northern Europe.
Spatial abundance and clustering of Culicoides (Diptera: Ceratopogonidae) on a local scale

Background
Biting midges, Culicoides, of the Obsoletus group and the Pulicaris group have been involved in recent outbreaks of bluetongue virus and the former was also involved in the Schmallenberg virus outbreak in northern Europe.

Methods
For the first time, here we investigate the local abundance pattern of these two species groups in the field by intensive sampling with a grid of light traps on 16 catch nights. Neighboring trap catches can be spatially dependent on each other, hence we developed a conditional autoregressive (CAR) model framework to test a number of spatial and non-spatial covariates expected to affect Culicoides abundance.

Results
The distance to sheep penned in the corner of the study field significantly increased the abundance level up to 200 meters away from the sheep. Spatial clustering was found to be significant but could not be explained by any known factors, and cluster locations shifted between catch nights. No significant temporal autocorrelation was detected. CAR models for both species groups identified a significant positive impact of humidity and significant negative impacts of precipitation and wind turbulence. Temperature was also found to be significant with a peak at just below 16 degrees Celsius. Surprisingly, there was a significant positive impact of wind speed. The CAR model for the Pulicaris group also identified a significant attraction to the smaller groups of sheep placed in the field. Furthermore, a large number of spatial covariates which were incorrectly found to be significant in ordinary regression models were not significant in the CAR models. The 95% C.I. on the prediction estimates ranged from 20.4% to 304.8%, underlining the difficulties of predicting the abundance of Culicoides.

Conclusions
We found that significant spatial clusters of Culicoides moved around in a dynamic pattern varying between catch nights. This conforms with the modeling but was not explained by any of the tested covariates. The mean abundance within these clusters was up to 11 times higher for the Obsoletus group and 4 times higher for the Pulicaris group compared to the rest of the field.


Spatio-temporal abundance of Culicoides on a local scale

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The presentation won 3rd prize (300 Euro) among 27 other contributions at the conference.

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

BACKGROUND: Estimating the abundance of Culicoides using light traps is influenced by a large variation in abundance in time and place. This study investigates the optimal trapping strategy to estimate the abundance or presence/absence of Culicoides on a field with grazing animals. We used 45 light traps to sample specimens from the Culicoides obsoletus species complex on a 14 hectare field during 16 nights in 2009.

FINDINGS: The large number of traps and catch nights enabled us to simulate a series of samples consisting of different numbers of traps (1-15) on each night. We also varied the number of catch nights when simulating the sampling, and sampled with increasing minimum distances between traps. We used resampling to generate a distribution of different mean and median abundance in each sample. Finally, we used the hypergeometric distribution to estimate the probability of falsely detecting absence of vectors on the field. The variation in the estimated abundance decreased steeply when using up to six traps, and was less pronounced when using more traps, although no clear cutoff was found.

CONCLUSIONS: Despite spatial clustering in vector abundance, we found no effect of increasing the distance between traps. We found that 18 traps were generally required to reach 90% probability of a true positive catch when sampling just one night. But when sampling over two nights the same probability level was obtained with just three traps per night. The results are useful for the design of vector monitoring programmes on fields with grazing animals.

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Web of Science (2017): Impact factor 3.163
Background

The intestinal microbiota is a complex and diverse ecosystem that plays a significant role in maintaining the health and well-being of the mammalian host. During the last decade focus has increased on the importance of intestinal bacteria. Several molecular methods can be applied to describe the composition of the microbiota. This study used a new approach, the Gut Microbiotassay: an assembly of 24 primer sets targeting the main phyla and taxonomically related subgroups of the intestinal microbiota, to be used with the high-throughput qPCR chip ‘Access Array 48.48′, AA48.48, (Fluidigm®) followed by next generation sequencing. Primers were designed if necessary and all primer sets were screened against DNA extracted from pure cultures of 15 representative bacterial species. Subsequently the setup was
tested on DNA extracted from small and large intestinal content from piglets with and without diarrhoea. The PCR amplicons from the 2304 reaction chambers were harvested from the AA48.48, purified, and sequenced using 454-technology.

Results
The Gut Microbiotassay was able to detect significant differences in the quantity and composition of the microbiota according to gut sections and diarrhoeic status. 454-sequencing confirmed the specificity of the primer sets. Diarrhoea was associated with a reduced number of members from the genus Streptococcus, and in particular S. alactolyticus.

Conclusion
The Gut Microbiotassay provides fast and affordable high-throughput quantification of the bacterial composition in many samples and enables further descriptive taxonomic information if combined with 454-sequencing.
The range of attraction for light traps catching Culicoides biting midges

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The range of attraction for light traps catching Culicoides biting midges

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

Background
Culicoides are vectors of e.g. bluetongue virus and Schmallenberg virus in northern Europe. Light trapping is an important tool for detecting the presence and quantifying the abundance of vectors in the field. Until now, few studies have investigated the range of attraction of light traps.

Methods
Here we test a previously described mathematical model (Model I) and two novel models for the attraction of vectors to light traps (Model II and III). In Model I, Culicoides fly to the nearest trap from within a fixed range of attraction. In Model II, Culicoides fly towards areas with greater light intensity, and in Model III Culicoides evaluate light sources in the field of view and fly towards the strongest. Model II and III incorporated the directionally dependent light field created around light traps with fluorescent light tubes. All three models were fitted to light trap collections obtained from two novel experimental setups in the field where traps were placed in different configurations.

Results
Results showed that overlapping ranges of attraction of neighboring traps extended the shared range of attraction. Model I did not fit data from any of the experimental setups. Model II could only fit data from one of the setups, while Model III fitted data from both experimental setups.

Conclusions
The model with the best fit, Model III, indicates that Culicoides continuously evaluate the light source direction and intensity. The maximum range of attraction of a single 4W CDC light trap was estimated to be approximately 15.25 meters. The attraction towards light traps is different from the attraction to host animals and thus light trap catches may not represent the vector species and numbers attracted to hosts.

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A Synoviocyte Model for Osteoarthritis and Rheumatoid Arthritis: Response to Ibuprofen, Betamethasone, and Ginger Extract—A Cross-Sectional In Vitro Study

This study aimed at determining if synovial cell cultures from rheumatoid arthritis (RA), osteoarthritis (OA), and healthy controls (HC) differ and are suitable disease models in pharmacological studies, and tested their response to some anti-inflammatory drugs. Synovial cells were isolated from synovial membrane or joint fluid. Cells were cultivated and exposed to no or TNF-α stimulation without, or in the presence of, betamethasone, ibuprofen, or a standardized ginger extract.
Concentrations of a panel of cytokines, growth factors, and chemokines were mapped for each culture and condition. Our cells secreted an increased amount of the cytokines IL-1β, IL-6, and IL-8 in response to TNF-α stimulation in all conditions. OA cells showed a higher IL-6 and IL-8 and a lower IL-1β production, when not stimulated, than RA and HC cells, which were similar. TNF-α stimulation caused similar IL-1β, IL-6, and IL-8 release in all groups. Ibuprofen showed no effect on cytokine production, while ginger extract was similar to betamethasone. Ginger extract was as effective an anti-inflammatory agent as betamethasone in this in vitro model. Cultured fibroblast-like synoviocytes from OA and RA subjects promise to be a useful pharmacological disease model, but further studies, to support results from such a model are needed.
Detection of Dairy Herds at Risk for Changing Salmonella Dublin status

Salmonella Dublin (S. Dublin) is a costly infection for dairy cows, potentially lethal to humans. Surveillance is based on bulk tank milk (BTM) antibody measurements, taken each quarter of the year. Herds are classified as Status 1 - likely free of S. Dublin, or Status 2 – likely infected with S. Dublin, based on present/recent characteristics, but not actual S. Dublin detection. We develop a predictive model based on characteristics from last quarter, using on registry data for 2001-2007 for 9387 herds in Denmark. Only 2004-2007 data modeled due to data contamination.

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Contributors: Stockmarr, A., Bødker, R., Nielsen, L. R.
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Fitting a distribution to microbial counts: making sense of zeros

Non-detects or left-censored results are inherent to the traditional methods of microbial enumeration in foods. Typically, a low concentration of microorganisms in a food unit goes undetected in plate counts or most probable number (MPN) counts, and produces “artificial zeros”. However, these “artificial zeros” are only a share of the total number of zero counts resulting from a sample, as their number adds up to the number of “true zeros” resulting from uncontaminated units. In the process of fitting a probability distribution to microbial counts, “artificial” and “true” zeros are usually undifferentiated. This practice may lead to errors in the estimation of the parameters for the distribution of microbial concentrations, most specifically to the underestimation of the mean and overestimation of the variance. Distributions of microbial counts are often used as input in quantitative microbial risk assessment; therefore it is possible that errors related to these distributions have an impact in terms of food safety, if an influence on the estimated risk is observed. In this study, we developed a method to estimate both the parameters of a lognormal distribution of microbial concentrations (mean and standard deviation) and the prevalence of contaminated food units (one minus the proportion of “true zeros”) from a set of microbial counts. By running the model with in silico generated concentration and count data, we could evaluate the performance of this method in terms of estimation of the three different parameters. In principle, the higher the proportion of zeros in a dataset, the higher the error in the estimation will be, and a lower prevalence contributes to a higher proportion of “true zeros” in microbial counts. Therefore, we also investigated the effect of the prevalence on the estimation of the distribution parameters mean and standard deviation by running the same model for different prevalence scenarios.

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Contributors: Ribeiro Duarte, A. S., Stockmarr, A., Nauta, M.
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Infectious risk factors for individual postweaning multisystemic wasting syndrome (PMWS) development in pigs from affected farms in Spain and Denmark

Two prospective longitudinal studies in 13 postweaning multisystemic wasting syndrome (PMWS)-affected farms from Spain (n = 3) and Denmark (n = 10) were performed. Blood samples from pigs were longitudinally collected from 1st week until the occurrence of the PMWS outbreak. Wasted and healthy age-matched pigs were euthanized, necropsied and histopathologically characterised. PMWS diagnosis was confirmed by means of lymphoid lesions and detection of porcine circovirus type 2 (PCV2) in these tissues by in situ hybridization or immunohistochemistry. Serological analyses were performed in longitudinally collected serum samples to detect antibodies against, PCV2, porcine reproductive and respiratory syndrome virus (PRRSV), porcine parvovirus (PPV), swine influenza virus (SIV) and Lawsonia intracellularis (law), Mycoplasma hypopneumoniae, Aujeszky’s disease virus (ADV) and Salmonella spp. A Cox proportional hazards model was used to investigate the simultaneous effects of seroconversion and maternal immunity against the studied pathogens. Results showed that high levels of maternal immunity against PCV2 had a protecting effect in farms from both countries. Moreover, for the Danish dataset, seroconversion against law had an overall protecting effect, but for animals with very low levels of maternal antibody levels against this pathogen, the effect appeared neutral or aggravating. Otherwise, for the Spanish dataset, maternal immunity against PPV and PRRSV gave protective and aggravating effects, respectively. In conclusion, the present study reflects the complex interaction among different pathogens and their effects in order to trigger PMWS in PCV2 infected pigs.

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Scopus rating (2015): CiteScore 1.57 SJR 0.774 SNIP 0.933
Web of Science (2015): Impact factor 1.504
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
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Web of Science (2014): Impact factor 1.409
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Scopus rating (2010): SJR 0.631 SNIP 0.98
Web of Science (2010): Impact factor 1.33
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Scopus rating (2007): SJR 0.558 SNIP 1.048
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Scopus rating (2005): SJR 0.647 SNIP 0.924
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 0.577 SNIP 0.954
Scopus rating (2003): SJR 0.543 SNIP 0.74
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 0.514 SNIP 1.045
Scopus rating (2001): SJR 0.503 SNIP 0.988
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Model's comparison
Three popular disease spread simulation models were used to simulate the spread of foot-and-mouth disease (FMD) in Denmark. The models' predictions in term of disease spread, consequence, and the ranking of the applied control strategies were compared. The original Davis Animal Disease Spread (DADS version 0.05) was adapted to DTU-DADS, and this model as well as InterSpread Plus (ISP version 2.001.11) and the North American Animal Disease Spread Model (NAADSM version 3.0.81) were all used to simulate hypothetical spread of FMD in Denmark. Data on Danish herds were used including herd type, movements, and location in the period 1st October 2006 to 30th September 2007.

The three models to the highest possible extend set up to simulate the same epidemics in 3 different control scenarios: 1) A basic scenario representing EU and Danish control strategies, 2) pre-emptive depopulation of susceptible herds in a 500 meters radius around the detected herds, and 3) suppressive vaccination of susceptible herds in a 1,000 meters radius around the detected herds. Depopulation and vaccination started either 14 days following the detection of the first infected herd or following detection of 50 infected herds. Five thousand index herds were selected randomly in which there were 1,000 cattle herds located in high density cattle area and 1,000 in low density cattle area, 1,000 swine herds located in high density swine area and 1,000 in low density swine area, and 1,000 sheep herds.

Generally, NAADSM predicted the largest, longest duration and costliest epidemics. DTU-DADS predicted larger, longer duration and costlier epidemics than ISP, except when epidemics started in cattle herds located in high density cattle area. ISP predicted suppressive vaccination to be less costly than depopulation, while the least costly control strategy predicted by DTU-DADS differed depending on the species and density area of the index herd. It was not possible to run the depopulation scenarios in the NAADSM due to limitations in the model.

Running several models in parallel gives better insight in disease spread, limits typing and coding errors and improves understanding of modeled processes. The chosen control strategy might depend on the chosen model.
Modulation of Cytokine mRNA Expression in Pharyngeal Epithelial Samples obtained from Cattle Infected with Foot-and-Mouth Disease Virus

A novel technique of endoscopical collection of small tissue samples was used to obtain sequential tissue samples from the dorsal soft palate (DSP) of individual cattle infected with foot-and-mouth disease virus (FMDV) at different phases of the infection. Levels of mRNA encoding interferon (IFN)-a and IFN-b as well as tumour necrosis factor (TNF)-a were measured in these samples by quantitative reverse transcriptase polymerase chain reaction. Expression of IFN-b mRNA was significantly down-regulated in the biopsy samples harvested during the acute phase of infection, while there was no statistically significant effect on the expression of IFN-a mRNA compared with baseline levels. In contrast, the mRNA encoding TNF-a was significantly up-regulated in samples collected during both acute and late (>28 days post infection) phases of infection. There were also significantly higher levels of TNF-a mRNA expressed in samples derived from animals that were identified subsequently as persistently infected FMDV-carriers. It was concluded that there was a significant difference in the host-response in the DSP of calves that were identified as persistently infected, subclinical carriers of FMDV.
Optimal combinations of acute phase proteins for detecting infectious disease in pigs

General information
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Organisations: Department of Informatics and Mathematical Modeling, DTU Data Analysis
Contributors: Stockmarr, A.
Optimizing the control of foot-and-mouth disease in Denmark by simulation: Comparison of foot-and-mouth disease simulation models

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Contributors: Hisham Beshara Halasa, T., Boklund, A., Stockmarr, A., Enøe, C., Christiansen, L. E.
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Media of output: Power Point Presentation

Regression modeller: Hvad regresserer vi på og hvorfor?

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Analysis of the acute phase responses of Serum Amyloid A, Haptoglobin and Type 1 Interferon in cattle experimentally infected with foot-and-mouth disease virus serotype O

A series of challenge experiments were performed in order to investigate the acute phase responses to foot-and-mouth disease virus (FMDV) infection in cattle and possible implications for the development of persistently infected "carriers". The host response to infection was investigated through measurements of the concentrations of the acute phase proteins (APPs) serum amyloid A (SAA) and haptoglobin (HP), as well as the bioactivity of type 1 interferon (IFN) in serum of infected animals. Results were based on measurements from a total of 36 infected animals of which 24 were kept for observational periods exceeding 28 days in order to determine the carrier-status of individual animals. The systemic host response to FMDV in infected animals was evaluated in comparison to similar measurements in sera from 6 mock-inoculated control animals. There was a significant increase in serum concentrations of both APPs and type 1 IFN in infected animals coinciding with the onset of viremia and clinical disease. The measured parameters declined to baseline levels within 21 days after inoculation, indicating that there was no systemically measurable inflammatory reaction related to the carrier state of FMD. There was a statistically significant difference in the HP response between carriers and non-carriers with a lower response in the animals that subsequently developed into FMDV carriers. It was concluded that the induction of SAA, HP and type 1 IFN in serum can be used as markers of acute infection by FMDV in cattle.

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Organisations: Sektion for Eksotiske Virussygdomme, Division of Virology, National Veterinary Institute, Innate Immunology, Division of Veterinary Diagnostics and Research
Optimal combinations of acute phase proteins for detecting infectious disease in pigs

The acute phase protein (APP) response is an early systemic sign of disease, detected as substantial changes in APP serum concentrations and most disease states involving inflammatory reactions give rise to APP responses. To obtain a detailed picture of the general utility of porcine APPs to detect any disease with an inflammatory component seven porcine APPs were analysed in serum sampled at regular intervals in six different experimental challenge groups of pigs, including three bacterial (Actinobacillus pleuropneumoniae, Streptococcus suis, Mycoplasma hyosynoviae), one parasitic (Toxoplasma gondii) and one viral (porcine respiratory and reproductive syndrome virus) infection and one aseptic inflammation. Immunochemical analyses of seven APPs, four positive (C-reactive protein (CRP), haptoglobin (Hp), pig major acute phase protein (pigMAP) and serum amyloid A (SAA)) and three negative (albumin, transthyretin, and apolipoprotein A1 (apoA1)) were performed in the more than 400 serum samples constituting the serum panel. This was followed by advanced statistical treatment of the data using a multi-step procedure which included defining cut-off values and calculating detection probabilities for single APPs and for APP combinations. Combinations of APPs allowed the detection of disease more sensitively than any individual APP and the best three-protein combinations were CRP, apoA1, pigMAP and CRP, apoA1, Hp, respectively, closely followed by the two-protein combinations CRP, pigMAP and apoA1, pigMAP, respectively. For the practical use of such combinations, methodology is described for establishing individual APP threshold values, above which, for any APP in the combination, ongoing infection/inflammation is indicated.

General information

State: Published
Organisations: Innate Immunology, Division of Veterinary Diagnostics and Research, National Veterinary Institute, Section for Veterinary Epidemiology and public sector consultancy, University of Zaragoza, University of Glasgow, Utrecht University
Contributors: Heegaard, P. M. H., Stockmarr, A., Piñeiro, M., Carpintero, R., Lampreave, F., Campbell, F. M., Eckersall, P. D., Toussaint, M. J., Gruys, E., Sørensen, N. S.
Pages: 50
Publication date: 2011
Peer-reviewed: Yes

Publication information
Journal: Veterinary Research
Volume: 42
Issue number: 1
ISSN (Print): 0928-4249
Ratings:
BFI (2019): BFI-level 2
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): SJR 1.266 SNIP 1.139
Web of Science (2017): Impact factor 2.903
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): SJR 1.44 SNIP 1.303
Web of Science (2016): Impact factor 2.798
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 2.66 SJR 1.537 SNIP 1.153
Web of Science (2015): Impact factor 2.928
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 2.46 SJR 1.453 SNIP 1.423
Web of Science (2014): Impact factor 2.815
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 3.13 SJR 1.681 SNIP 1.701
Web of Science (2013): Impact factor 3.383
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): CiteScore 2.97 SJR 1.461 SNIP 1.45
Web of Science (2012): Impact factor 3.426
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): CiteScore 3.85 SJR 1.712 SNIP 1.655
Web of Science (2011): Impact factor 4.06
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 1.531 SNIP 1.606
Web of Science (2010): Impact factor 3.765
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 1.489 SNIP 1.689
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 1.578 SNIP 2.002
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.749 SNIP 2.189
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 1.353 SNIP 1.936
Scopus rating (2005): SJR 0.885 SNIP 1.567
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 0.79 SNIP 1.3
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 0.727 SNIP 1.068
Scopus rating (2002): SJR 0.809 SNIP 1.175
Scopus rating (2001): SJR 0.624 SNIP 1.169
Web of Science (2001): Indexed yes
Avian influenza caused by avian influenza virus (AIV) has a negative impact on poultry production. Low-pathogenic AIV (LPAIV) is naturally present in wild birds, and the introduction of the virus into domestic poultry is assumed to occur through contact with wild birds and by human activity, including the movement of live and dead poultry, and fomites such as clothing and vehicles. At present, the possible role of insects in the spread of AIV is dubious. The objective of the present work was to investigate the potential transmission of LPAIV by persistence of the virus in the alimentary tract of house flies, Musca domestica L. (Diptera: Muscidae). Flies were fed three virus concentrations of two AIV strains and then incubated at different temperatures for up to 24 h. The persistence of the two virus strains in the flies declined with increasing incubation temperatures and incubation periods. Similarly, increased virus uptake by the flies increased the persistence of virus. Persistence of infective AIV in flies differed significantly between the two virus strains. The laboratory experiments of the present study indicate that the house fly can be a potential carrier of AIV.
R0-modeling as a tool for early warning and surveillance of exotic vector borne diseases in Denmark

Modelling the potential transmission intensity of insect borne diseases with climate driven R0 process models is frequently used to assess the potential for veterinary and human infections to become established in non endemic areas. Models are often based on mean temperatures of an arbitrary time period e.g. a monthly temperature mean. Temperature decreases with latitude, and in the Nordic countries periods of suitable temperatures, the windows of opportunity for transmission, may be very short and only appear in odd years. While average monthly temperatures are likely to be suitable for predicting permanent establishment of presently exotic diseases, mean temperatures may not predict the true potential for local spread and limited outbreaks resulting from accidental introductions in years with temporary periods of warm weather. We present a system for continuous risk assessment of potential local spread of exotic insect borne diseases of veterinary and human importance. R0 models for various vector borne diseases are continuously updated with spatial temperature data to quantify the present risk of autochthonous cases (R0>0) and the present risk of epidemics (R0>1) in case an infected vector or host are introduced to the area. The continuously updated risk assessment maps functions as an early warning system allowing authorities and industry to increase awareness and preventive measures when R0 raises above the level of ‘no possible transmission’ and target active serological surveillance to these limited periods of potential risk, thus dramatically reducing the number of samples collected and analysed. The risk estimated from the R0 modelling may be combined with the risk of introduction from neighbouring countries and trading partners to generate a truly risk based surveillance system for insect borne diseases. R0 models for many vector borne diseases are simple and the available estimates of model parameters like vector densities and survival rates may be uncertain. The quantitative value of R0 estimated from such models is therefore likely to deviate from the true R0. However assuming the models are qualitatively able to rank the estimated R0 correctly, a period resulting in a relatively high estimated R0 will also be a period with a relatively high true R0. This allows the estimated R0 to be used for targeted surveillance by focussing the
surveillance on periods and areas with high R0 estimates even if the actual value of these estimates are difficult to interpret. Furthermore running R0 models on historic outbreaks in Europe may be used to fit estimates for R0 for these data. When comparing the model R0 to the observed value of R0 a correction factor is obtained that may be used to adjust the model estimates in Denmark, and thus allowing a more quantitative interpretation of the estimated R0. We here demonstrate the system for bluetongue using 2008 climate data and compare the predicted R0 with the actual spread of bluetongue in Scandinavia i 2008.

**General information**

State: Published
Organisations: Section for Veterinary Epidemiology and public sector consultancy, Division of Veterinary Diagnostics and Research, National Veterinary Institute
Contributors: Bødker, R., Kristensen, B., Græsbøll, K., Kirkeby, C., Stockmarr, A.
Publication date: 2011
Peer-reviewed: Yes
Keywords: Risk assessment, Early warning, Vector borne, Risk based surveillance, Bluetongue
Electronic versions:
  - Abstract_Rene_Bodker.pdf
  - http://www.epizone-eu.net/annual-meetings/5th-annual-meeting.aspx
Source: orbit
Source-ID: 277788
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2011

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

**General information**

State: Published
Organisations: National Veterinary Institute, Division of Veterinary Diagnostics and Research, Section for Veterinary Epidemiology and public sector consultancy
Contributors: Kirkeby, C., Bødker, R., Stockmarr, A., Lind, P.
Number of pages: 13
Publication date: 2011
Peer-reviewed: Yes
Electronic versions:
  - Spatial_models_for_the_distribution.pdf
  - http://www.epizone-eu.net/annualmeeting/default.aspx
Source: orbit
Source-ID: 277788
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2011

**Infectious risk factors for postweaning multisystemic wasting syndrome (PMWS) development**

**General information**

State: Published
Organisations: National Veterinary Institute, Section for Veterinary Epidemiology and public sector consultancy, Division of Veterinary Diagnostics and Research, Section for Veterinary Diagnostics, Virology, CReSA - Centre for Animal Health Research, Danish Agriculture and Food Council
Number of pages: 327
Pages: P.021
Publication date: 2010

**Host publication information**

Title of host publication: Proceedings of the 21st International Pig Veterinary Society Congress
URLs:
Source: orbit
Source-ID: 282423
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2011
Modeling the density of bluetongue vectors in a field

General information
State: Published
Organisations: Section for Veterinary Epidemiology and public sector consultancy, Division of Veterinary Diagnostics and Research, National Veterinary Institute
Contributors: Kirkeby, C., Bødker, R., Stockmarr, A.
Publication date: 2010
Peer-reviewed: Yes
Event: Poster session presented at Bluetongue in the Nordic countries, Oslo, Norway.
Source: orbit
Source-ID: 272068
Research output: Research - peer-review › Poster – Annual report year: 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

General information
State: Published
Organisations: Section for Veterinary Epidemiology and public sector consultancy, Division of Veterinary Diagnostics and Research, National Veterinary Institute
Contributors: Bødker, R., Græsbøll, K., Kristensen, B., Kirkeby, C., Stockmarr, A.
Publication date: 2010
Peer-reviewed: Yes
Event: Abstract from Bluetongue in the Nordic countries, Oslo, Norway.
Source: orbit
Source-ID: 272060
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2010

Relative risk for human illness of biogas effluent use in horticulture at small-scale pig farms in northern Vietnam

Treatment of animal manure in small-scale biogas systems are spreading rapidly in developing countries like Vietnam. The anaerobic fermentation breaks down solid matter and transforms it into methane which can be used for cooking and generation of light. Other benefits include a high-quality fertilizer effluent, reduction of problems with mal odour and a potential also to treat human waste products. Often the hygiene and health aspects of handling and digesting these organic wastes are unknown and the promotion of biogas technologies does rarely consider hygienic aspects. The aim of the current study was therefore to establish simple hygiene models for Vietnamese small-scale farmers that could describe the relative health risks associated with management of manure and consumption of the fertilized crop when using: i) fresh manure, ii) stored manure or iii) manure processed in the biogas plants. The hygiene models were developed based on information collected during interviews and observations of Vietnamese farmers operating biogas digesters as well as from the literature. Rather than calculating the specific risk for one person to become infected when handling a specific type of manure, we established hygiene models to calculate the relative risks of infection with the two model pathogens, Salmonella Typhimurium and Ascaris, allowing a comparison of risks for the different manure handling systems. Results showed that there was ten times higher risk of a human S. Typhimurium infection when handling fresh manure or composted manure as compared to handling of manure treated in a biogas system. In contrast, the risk for infection with the more resistant Ascaris was equivalent for all three manure handling systems. There is an urgent need to document the hygiene aspects of biogas systems developed and promoted to farmers in developing counties. Thus, further studies are needed on human exposure when handling animal manure and human excreta and pathogen survival in biogas systems as such information is essential to further refine the hygiene models developed and to formulate hygiene guidelines for biogas systems.

General information
State: Submitted
Organisations: Section for Veterinary Epidemiology and public sector consultancy, Division of Veterinary Diagnostics and Research, National Veterinary Institute, University of Copenhagen
Contributors: Kiilholma, J., Stockmarr, A., Poulsen, L. L., Dalsgaard, A.
Publication date: 2010
Peer-reviewed: Yes

Publication information
Journal: Livestock Science
ISSN (Print): 1871-1413
Ratings:
BFI (2019): BFI-level 1
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
Scopus rating (2017): CiteScore 1.6 SJR 0.73 SNIP 1.036
Web of Science (2017): Impact factor 1.204
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.58 SJR 0.817 SNIP 1.095
Web of Science (2016): Impact factor 1.377
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 1.35 SJR 0.838 SNIP 0.994
Web of Science (2015): Impact factor 1.293
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 1.56 SJR 0.827 SNIP 1.211
Web of Science (2014): Impact factor 1.171
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 1.4 SJR 0.733 SNIP 1.049
Web of Science (2013): Impact factor 1.1
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 1.46 SJR 0.847 SNIP 1.172
Web of Science (2012): Impact factor 1.249
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 1.59 SJR 1.001 SNIP 1.243
Web of Science (2011): Impact factor 1.506
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.864 SNIP 1.059
Web of Science (2010): Impact factor 1.295
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.817 SNIP 1.069
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.652 SNIP 0.915
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.6 SNIP 1.129
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 0.957 SNIP 1.372
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 0.779 SNIP 1.196
Scopus rating (2004): SJR 0.981 SNIP 1.386
Scopus rating (2003): SJR 0.855 SNIP 1.197
Scopus rating (2002): SJR 0.827 SNIP 1.115
Scopus rating (2001): SJR 0.673 SNIP 1.122
Scopus rating (2000): SJR 0.807 SNIP 1.323
Scopus rating (1999): SJR 1.034 SNIP 1.314

Original language: English
Keywords: human health, hygiene, manure, risk model, biogas, Vietnam
Source: orbit
Simple spatial distribution models for vector density in a field: Bloodsucking creatures from dusk to dawn

General information
State: Published
Organisations: National Veterinary Institute, Division of Veterinary Diagnostics and Research, Section for Veterinary Epidemiology and public sector consultancy
Contributors: Kirkeby, C., Bedker, R., Stockmarr, A., Lind, P., Græsbøll, K.
Number of pages: 13
Publication date: 2010
Peer-reviewed: Yes
Event: Abstract from GEOVET 2010, Sydney, Australia.
Electronic versions:
  Simple_spatial_distribution_models.pdf

Dimensions of socioeconomic position related to body mass index and obesity among Danish women and men
Aims: The aim of this study was to examine the association between different dimensions of socioeconomic position, body mass index (BMI) and obesity in the Danish population. Possible interactions between the different dimensions and gender differences were also investigated. Methods: This was a cross-sectional survey conducted in 2000–2002 including a simple random sample from the civil registration system, comprising 1953 males and 2167 females aged 4–75 years. Information about different dimensions of socioeconomic position, height and weight was obtained by face-to-face interview. Associations between dimensions of socioeconomic position and weight status were examined by use of linear multiple regression analysis and logistic regression analysis. Results: BMI and prevalence of obesity were significantly associated with education for both men and women. Odds ratios (ORs) for obesity were 2.9 (95% confidence interval (CI) 1.4–5.9) and 6.5 (95% CI 2.3–18.7) for those with basic school as compared with those with long higher education for men and women, respectively. Women outside the labour market had higher BMIs and a greater prevalence of obesity (OR 2.5 (95% CI 1.6–3.9)) after adjustment for educational level. Conclusions: Education was the dimension most consistently associated with BMI and obesity, indicating the importance of cultural capital for weight status. The gender-specific pattern showed a stronger social gradient for women, and indicated that a high relative body weight was associated with less favourable social and material conditions for women, but not for men. A public health strategy to prevent and reduce obesity should be gender-specific, focus on groups with short education, and incorporate cultural norms.

General information
State: Published
Organisations: National Food Institute, National Veterinary Institute
Contributors: Groth, M. V., Fagt, S., Stockmarr, A., Matthiessen, J., Biltoft-Jensen, A. P.
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Peer-reviewed: Yes

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ISSN (Print): 1403-4948
Ratings:
BFI (2019): BFI-level 1
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 1.58 SJR 0.823 SNIP 0.857
Web of Science (2017): Impact factor 1.646
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.34 SJR 0.778 SNIP 0.785
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 1.72 SJR 0.873 SNIP 1.049
Web of Science (2015): Impact factor 1.318
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 3.47 SJR 2.319 SNIP 1.666
Web of Science (2014): Impact factor 1.832
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 2.82 SJR 1.715 SNIP 1.374
Web of Science (2013): Impact factor 3.125
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 2.02 SJR 0.968 SNIP 1.075
Web of Science (2012): Impact factor 1.966
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 1.54 SJR 0.756 SNIP 0.94
Web of Science (2011): Impact factor 1.388
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.784 SNIP 0.946
Web of Science (2010): Impact factor 1.487
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.122 SNIP 1.131
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 0.277 SNIP 1.064
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.021 SNIP 3.105
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 0.572 SNIP 0.65
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 0.182 SNIP 0
Scopus rating (2004): SJR 0.2 SNIP 0.531
Scopus rating (2003): SJR 0.4 SNIP 1.199
Scopus rating (2002): SJR 0.368 SNIP 0.332
Scopus rating (2001): SJR 0.439 SNIP 7.952
Scopus rating (2000): SJR 0.314 SNIP 1.045
Scopus rating (1999): SJR 0.281 SNIP 0.673

Original language: English
Keywords: Body mass index, obesity, overweight, socioeconomic position, socioeconomic status
DOIs: 10.1177/1403494809105284
Source: orbit
Source-ID: 245915
Research output: Research - peer-review › Journal article – Annual report year: 2009
Age-dependent windows for cohort culling in BSE herds

General information
State: Published
Organisations: Section for Veterinary Epidemiology and public sector consultancy, Division of Veterinary Diagnostics and Research, National Veterinary Institute
Contributors: Stockmarr, A.
Pages: 79-88
Publication date: 2009
Peer-reviewed: Yes

Publication information
Journal: Preventive Veterinary Medicine
Volume: 92
Issue number: 1-2
ISSN (Print): 0167-5877
Ratings:
BFI (2019): BFI-level 2
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 2.26 SJR 1.144 SNIP 1.31
Web of Science (2017): Impact factor 1.924
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 2.2 SJR 1.249 SNIP 1.361
Web of Science (2016): Impact factor 1.987
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 2.1 SJR 1.282 SNIP 1.177
Web of Science (2015): Impact factor 2.182
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 2.37 SJR 1.27 SNIP 1.407
Web of Science (2014): Impact factor 2.167
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 2.49 SJR 1.264 SNIP 1.529
Web of Science (2013): Impact factor 2.506
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): CiteScore 2.45 SJR 1.265 SNIP 1.436
Web of Science (2012): Impact factor 2.389
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): CiteScore 2.24 SJR 1.194 SNIP 1.295
Web of Science (2011): Impact factor 2.046
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 1.156 SNIP 1.284
Web of Science (2010): Impact factor 2.07
Association between land cover and Culicoides (Diptera: Ceratopogonidae) breeding sites on four Danish cattle farms

Biting midges of the genus Culicoides are vectors of bluetongue virus. Their larval habitats are poorly known in Northern Europe. Three classes of the CORINE land cover index, found within 300 m of four farms in Denmark, were used to stratify sampling sites for a total of 360 soil core samples from 30 sampling points. Soil samples were set up in emergence chambers for hatching adult Culicoides. Two species of Culicoides (C. punctatus and C. pulicaris) emerged from nine of 12 soil samples from a wet, grazed field with manure. Seventy-two other samples from similar land cover on the three other farms were negative. Seven sampling points from pastures were incorrectly classified by CORINE. The remaining 23 sampling points were classified correctly. The visually observed land use was not sufficiently detailed to adequately predict Culicoides breeding sites in this study. The CORINE index failed to identify pastures in which Culicoides breeding sites were found.

General information
State: Published
Organisations: Section for Veterinary Epidemiology and public sector consultancy, Division of Veterinary Diagnostics and Research, National Veterinary Institute
Contributors: Kirkeby, C., Badker, R., Stockmarr, A., Enæe, C.
Pages: 228-232
Publication date: 2009
Peer-reviewed: Yes

Publication information
Journal: Entomologica Fennica
Volume: 20
Issue number: 4
ISSN (Print): 0785-8760
Ratings:
BFI (2019): BFI-level 1
Aim: Muscle strength is an excellent indicator of general health when based on reliable measurements. Muscle strength data for a healthy population are rare or non-existent. The aim of the present study was to measure a set of normal values for isometric and isokinetic muscle strength for all the major joint movements of the body and, from these data, to create a basis for comparison of the muscle strength of an individual with the expected value in a normal population. Methods: A
randomly selected group, aged 20–80 years, from the Copenhagen City Heart Study were studied. The group was sub grouped according to age and gender. Isometric and isokinetic muscle strength was measured in each subject across the main joints in the body. A statistical model was developed that encompassed the three main muscle groups: upper limbs, trunk and lower limbs. Results: Muscle strength in healthy men decreases in a linear fashion from the age of 25 years down to between 54% and 89% at the age of 75 years, and seems not highly dependent on any other parameter than age. For women, the muscle strength is dependent on weight and is only related to age from around 40 years of age. The decrease in muscle strength from the age around 40 to 75 years is 48–92%. For most muscle groups, men are 1.5–2 times stronger than women, with the oldest men having strength similar to that observed among the youngest women. Conclusion: We developed a model to compare the isometric and isokinetic muscle strength of all the major joint movements of an individual with values for a healthy man or woman at any age in the range of 20–80 years. In all age groups, women have lower muscle strength than men. Men’s muscle strength declines with age, while women’s muscle strength declines from the age of 41 years.

General information
State: Published
Organisations: Section for Veterinary Epidemiology and public sector consultancy, Division of Veterinary Diagnostics and Research, National Veterinary Institute, The Copenhagen City Heart Study, Copenhagen University Hospital
Contributors: Danneskiold-Samsøe, B., Bartels, E. M., Bülow, P. M., Lund, H., Stockmarr, A., Holm, C. C., Wätchen, I., Appleyard, M., Bliddal, H.
Pages: S1-S68
Publication date: 2009
Peer-reviewed: Yes

Publication information
Journal: Acta Physiologica (Print)
Volume: 197
Issue number: Suppl. 673
ISSN (Print): 1748-1708
Ratings:
BFI (2019): BFI-level 1
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 3.42 SJR 1.542 SNIP 1.193
Web of Science (2017): Impact factor 5.93
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.99 SJR 1.654 SNIP 1.081
Web of Science (2016): Impact factor 4.867
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 2.78 SJR 1.654 SNIP 1.075
Web of Science (2015): Impact factor 4.066
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 3.5 SJR 1.855 SNIP 1.251
Web of Science (2014): Impact factor 4.382
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 3.66 SJR 1.66 SNIP 1.083
Web of Science (2013): Impact factor 4.251
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 4.05 SJR 1.531 SNIP 1.191
Web of Science (2012): Impact factor 4.382
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 2.64 SJR 1.451 SNIP 1.053
Effect of tulathromycin on the carrier status of Actinobacillus pleuropneumoniae serotype 2 in the tonsils of pigs

The effect of a single or double dose of tulathromycin was evaluated in pigs carrying Actinobacillus pleuropneumoniae serotype 2 in their tonsils. Twenty-nine pigs from a reinfected specific pathogen-free-herd were selected from animals testing positive in an A pleuropneumoniae serotype 2-specific PCR test on tonsil scrapings and they were divided into three groups. The pigs in group I were treated subcutaneously with 2.5 mg/kg tulathromycin on day 0, the pigs in group 2 were treated with 2.5 mg/kg tulathromycin on days 0 and 4, and the pigs in group 3 were left untreated as controls. The pigs were tested by PCR on tonsil scrapings on days 0, 4, 11 and 33, and on day 33 all the animals were euthanased. There were no significant differences between the numbers of PCR-positive animals in the three groups on any of the sampling dates.

General information
State: Published
Organisations: Bacteriology & Pathology, Division of Veterinary Diagnostics and Research, National Veterinary Institute, Section for Veterinary Epidemiology and public sector consultancy
Contributors: Angen, Ø., Andreasen, M., Nielsen, E., Stockmarr, A., Bækbo, R.
Pages: 445-447
Publication date: 2008
Peer-reviewed: Yes

Publication information
Journal: Veterinary Record
Volume: 163
Issue number: 15
ISSN (Print): 0042-4900
Ratings:
BFI (2019): BFI-level 1
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
Prevalence and trends in overweight and obesity among children and adolescents in Denmark

Aim: To study the current prevalence and trends in overweight and obesity among children and adolescents in Denmark from 1995 to 2000—2002. Methods: Cross-sectional national dietary surveys were conducted in 1995 and 2000—2002. The analysis was based on two random population samples from the Danish civil registration system. Body mass index (BMI) was calculated from self-reported height and weight for 1,026 and 1,152 children and adolescents (4—18 years), who participated in 1995 and 2000—2002, respectively. The prevalence of overweight and obesity was defined according to the international age and gender-specific child BMI cut-off points. In the statistical analysis, overweight and obesity were included in the prevalence of overweight. Results: Mean BMI increased significantly between 1995 and 2000—2002 for all combinations of age groups (4—6, 7—10, 11—14 and 15—18 years) and genders. Prevalence of overweight increased between survey years for boys and girls for all age groups (4—6, 7—10, 11—14 and 15—18 years), although formal statistical significance was not reached (p>0.05). When all children and adolescents (4—18 years) were analysed, the prevalence of overweight rose significantly from 10.9% (95% confidence interval (CI) 9.0—12.8) to 14.4% (95% CI 12.5—16.3) between 1995 and 2000—2002 (p=0.01), whereas the increase in the prevalence of obesity did not reach significance (1995, 2.3% (95% CI 1.3—3.3) vs. 2000—2002, 2.4% (95% CI 1.6—3.3); p=0.74). Conclusions: The present
study revealed a significant increase from 1995 to 2000—2002 in mean BMI for boys and girls for all age groups and a significant increase in the prevalence of overweight when all Danish children and adolescents (4—18 years) were analysed.

**General information**

State: Published
Organisations: National Food Institute, Division of Nutrition, National Veterinary Institute, Technical University of Denmark
Pages: 153-160
Publication date: 2008
Peer-reviewed: Yes

**Publication information**

Volume: 36
ISSN (Print): 1403-4948
Ratings:
BFI (2019): BFI-level 1
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 1.58 SJR 0.823 SNIP 0.857
Web of Science (2017): Impact factor 1.646
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.34 SJR 0.778 SNIP 0.785
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 1.72 SJR 0.873 SNIP 1.049
Web of Science (2015): Impact factor 1.318
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 3.47 SJR 2.319 SNIP 1.666
Web of Science (2014): Impact factor 1.832
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 2.82 SJR 1.715 SNIP 1.374
Web of Science (2013): Impact factor 3.125
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 2.02 SJR 0.968 SNIP 1.075
Web of Science (2012): Impact factor 1.966
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 1.54 SJR 0.756 SNIP 0.94
Web of Science (2011): Impact factor 1.388
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.784 SNIP 0.946
Web of Science (2010): Impact factor 1.487
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.122 SNIP 1.131
Age dependent windows for cohort culling Bovine Spongiform Encephalopathy

General information
State: Published
Organisations: Section for Veterinary Epidemiology and public sector consultancy, Division of Veterinary Diagnostics and Research, National Veterinary Institute
Contributors: Stockmarr, A.
Pages: 282-292
Publication date: 2007

Host publication information
Title of host publication: Proceedings of the Society for Veterinary Epidemiology and Preventive Medicine, 28. - 30. March 2007, Dipoli, Helsinki/Espoo, Finland
Source: orbit
Source-ID: 244627
Research output: Research › Article in proceedings – Annual report year: 2007

Dispersal distances for airborne spores based on deposition rates and stochastic modeling
A new modeling framework for particle dispersal is explored in the context of the particles being fungal spores dispersed within a field. The model gives rise to both exponentially decreasing and polynomially decreasing two-dimensional densities of deposited fungal spores. We reformulate the model in terms of time to deposition, and show how this concept is equivalent to the deposition rate for fungal spores. Special cases where parameter values for wind and gravitation lead to exponentially or polynomially decreasing densities are discussed, and formulas for one- and two-dimensional densities of deposited spores are given explicitly in terms of parameters for diffusion, wind, gravitation, and spore release height.

General information
State: Published
Organisations: Section for Veterinary Epidemiology and public sector consultancy, Division of Veterinary Diagnostics and Research, National Veterinary Institute, Bioenergy and Biomass, Biosystems Division, Risø National Laboratory for Sustainable Energy
Contributors: Stockmarr, A., Andreasen, V., Østergård, H.
Pages: 1325-1330
Publication date: 2007
Peer-reviewed: Yes
The main objective of the project was the identification and analysis of new technical concepts for centralized biogas plants, which would make them less dependent on organic waste supplies, and thus be economically self sustained mainly on manure supplies. The analyses have been carried out as system analyses, where plant concepts have been evaluated in connection with agricultural areas. 8 scenarios where analyzed, of which 2 were reference scenarios. One without a
biogas plant, but with on-farm separation in order to reach phosphorous balance in the area by exporting fiber fraction (Scenario 0) to other regions, and one with a conventional centralized biogas plant with a post separation facility, likewise to enable the export of surplus phosphorous (Scenario 1). The remaining 6 scenarios are: 1a. Serial digestion in two digesters, and partial post separation of digested manure so phosphorous balance in the area is obtained. 1b. Conventional centralized biogas plant, post separation and recycling most of the fiber fraction. Export of fiber fraction till phosphorous balance in the area is obtained. 2. On farm separation of major parts of pig manure. Fiber fraction supplied to the biogas plant and mixed with remaining conventional slurry until a dry matter content of 10% in the biogas plant has been reached. The thin fraction remains on the farms and is utilized as a fertilizer. Post separation of the digested manure, pretreatment (wet oxidation) and recycling most of the fiber fraction to the digesters. The remaining fiber fraction is exported until phosphorous balance in the area is reached. 2a. Same as 2, but pressure boiling of the fiber fraction in stead of wet oxidation. 2b. Same as 2, but no on farm separation, which means that the entire manure amount in the area is supplied to the biogas plant. 2c. On farm separation until 10% dry matter content in input is reached, no pretreatment but post separation until phosphorous balance in the area is obtained.

General information
State: Published
Organisations: Bioscience and Technology, Department of Systems Biology, National Food Institute, National Veterinary Institute, Department of Biotechnology
Publication date: 2007

Future Biogas Plants: New Systems and their economic potential
General information
State: Published
Organisations: Department of Electrical Engineering, Risø National Laboratory for Sustainable Energy, Division of Microbiology and Risk Assessment, National Food Institute, Section for Veterinary Epidemiology and public sector consultancy, Division of Veterinary Diagnostics and Research, National Veterinary Institute
Contributors: Christensen, J., Hjort-Gregersen, K., Uellendahl, H., Ahring, B. K., Baggesen, D. L., Stockmarr, A., Møller, A. B., Birkmose, T.
Publication date: 2007

Comparative, Collaborative, and On-Site Validation of a TaqMan PCR Method as a Tool for Certified Production of Fresh, Campylobacter-Free Chickens
Certified Campylobacter-free poultry products have been produced in Denmark since 2002, the first example of fresh (unprocessed and nonfrozen) chickens labeled "Campylobacter free." This success occurred partly through use of a 4-hour gel-based PCR testing scheme on fecal swabs. In this study, a faster, real-time PCR approach was validated in comparative and collaborative trials, based on recommendations from the Nordic system for validation of alternative microbiological methods (NordVal). The comparative real-time PCR trial was performed in comparison to two reference culture protocols on naturally contaminated samples (99 shoe covers, 101 cloacal swabs, 102 neck skins from abattoirs, and 100 retail neck skins). Culturing included enrichment in both Bolton and Preston broths followed by isolation on Preston agar and mCCDA. In one or both culture protocols, 169 samples were identified as positive. The comparative trial resulted in relative accuracy, sensitivity, and specificity of 98%, 95%, and 97%, respectively. The collaborative trial included nine laboratories testing neck skin, cloacal swab, and shoe cover samples, spiked with low, medium, and high concentrations of Campylobacter jejuni. Valid results were obtained from six of the participating laboratories. Accuracy for high levels was 100% for neck skin and cloacal swab samples. For low levels, accuracy was 100% and 92% for neck skin and cloacal swab samples, respectively; however, detection in shoe cover samples failed. A second collaborative trial, with an optimized DNA extraction procedure, gave 100% accuracy results for all three spiking levels. Finally, on-site validation at the abattoir on a flock basis was performed on 400 samples. Real-time PCR correctly identified 10 of 20 flocks as positive; thus, the method fulfilled the NordVal validation criteria and has since been implemented at a major abattoir.
Data Manipulation etc. for Data Received From Vose Consulting

**General information**
State: Published
Organisations: Section for Veterinary Epidemiology and public sector consultancy, Division of Veterinary Diagnostics and Research, National Veterinary Institute
Contributors: Stockmarr, A.
Publication date: 2006

**Publication information**
Original language: English
Source: orbit
Source-ID: 244613
Research output: Research › Report – Annual report year: 2006

Risikovurdering gennemført af Danmarks Fødevareforskning vedr. effekten af at fjerne loftet på 500 dyrehed per. landbrugsejendom

**General information**
State: Published
Organisations: Division of Microbiology and Risk Assessment, National Food Institute, Sektion for Eksotiske Virussygdomme, Division of Virology, National Veterinary Institute, Section of Poultry Diseases, Division of Poultry, Fish and Fur Animals, Section for Veterinary Diagnostics, Division of Veterinary Diagnostics and Research, Section for Veterinary Epidemiology and public sector consultancy
Publication date: 2006

**Publication information**
Publisher: Danmarks Fødevareforskning
Survival and transmission of *Salmonella enterica* serovar typhimurium in an outdoor organic pig farming environment

It was investigated how organic rearing conditions influence the *Salmonella enterica* infection dynamics in pigs and whether *Salmonella* persists in the paddock environment. Pigs inoculated with *S. enterica* serovar Typhimurium were grouped with *Salmonella*-negative tracer pigs. Bacteriological and serological testing indicated that organic pigs were susceptible to *Salmonella* infections, as 26 of 46 (56%) tracer pigs turned culture positive. An intermittent and mainly low-level excretion of *Salmonella* (<100 cells g(-1)) partly explains why the bacteriological prevalence appeared lower than the seroprevalence. *Salmonella* persisted in the paddock environment, as *Salmonella* was isolated from 46% of soil and water samples (n = 294). After removal of pigs, *Salmonella* was found in soil samples for up to 5 weeks and in shelter huts during the entire test period (7 weeks). Subsequent introduction of *Salmonella*-negative pigs into four naturally *Salmonella*-contaminated paddocks caused *Salmonella* infections of pigs in two paddocks. In one of these paddocks, all tracer pigs (n = 10) became infected, coinciding with a previous high *Salmonella* infection rate and high *Salmonella* excretion level. Our results showed that pigs reared under organic conditions were susceptible to *Salmonella* infections (just like conventional pigs) and that *Salmonella* persisting in the paddock environment could pose an infection risk. A driving force for these infections seemed to be pigs with a high *Salmonella* excretion level, which caused substantial contamination of the environment. This suggests that isolation of animals as soon as a *Salmonella* infection is indicated by clinical symptoms of diarrhea could be a means of reducing and controlling the spread and persistence of *Salmonella* in outdoor organic pig production environments.
Porcine acute phase proteins in experimental models of infectious diseases.

General information
State: Published
Organisations: Innate Immunology, Division of Veterinary Diagnostics and Research, National Veterinary Institute, Section for Veterinary Epidemiology and public sector consultancy
Contributors: Heegaard, P. M. H., Stockmarr, A., Sørensen, N. S.
Publication date: 2005
Smitterisiko ved separering af gylle

General information
State: Published
Organisations: Division of Microbiology and Risk Assessment, National Food Institute, Virology, Division of Veterinary Diagnostics and Research, National Veterinary Institute, Adaptive Immunology & Parasitology, Section for Veterinary Epidemiology and public sector consultancy
Publication date: 2005
Peer-reviewed: No

Publication information
Journal: Forskning i bioenergi
Volume: 6
ISSN (Print): 1604-6331
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Original language: Danish

Bibliographical note
Translated titel: Infection risk in relation to manure separation
Source: orbit
Source-ID: 241862
Research output: Research › Journal article – Annual report year: 2005

Wildrisk: Classical swine fever and wild boar in Denmark: A risk analysis

General information
State: Published
Organisations: National Veterinary Institute, Section for Veterinary Epidemiology and public sector consultancy, Division of Veterinary Diagnostics and Research, Sektion for Eksotiske Virussygdomme, Division of Virology, Danish Bacon and Meat Council, Danish Centre for Environment and Energy, Centre for Environmental Research Leipzig-Halle, Danish Institute for Food and Veterinary Research, Danish Veterinary and Food Administration
Number of pages: 118
Publication date: 2005

Publication information
Publisher: Danish Institute for Food and Veterinary Research
ISBN (Print): 87-91-58701-8
Original language: English
Keywords: Risk analysis, virus, wildrisk, wild boar
Electronic versions:
WILDRISK_2005.pdf
URLS:
Source: orbit
Source-ID: 240540
Research output: Research › Report – Annual report year: 2005

Principles, application areas and an example of risk assessment conducted at the Danish Institute for Food and Veterinary Research
The Department for Epidemiology and Risk Analysis at the Danish Institute for Food and Veterinary Research (DFVF) is concerned with risk analyses in the areas of food safety, zoo noses, antimicrobial resistance and OIE (World Organisation
for Animal Health) list A and B diseases. The DFVF is responsible for the risk assessment component of the risk analysis process and provides advice and support for the risk management and risk communication component, which is generally under the auspices of the Danish Veterinary and Food Administration (DVFA). The paper presents guidelines for the conduct of risk assessments at the DFVF. Important elements of these guidelines are the independence between risk assessment and risk management, the commitment to science-based, transparent and fully documented procedures and adherence to a protocol that regulates the cooperation between DFVF and DVFA. Typical steps of a quantitative risk assessment are the description of the risk scenario, information retrieval, mathematical modelling with stochastic simulation, final risk estimation with a sensitivity analysis and reporting. The procedure is exemplified using a Monte Carlo simulation model for the assessment of the risk of BSE transmission to calves by tallow-based calf milk replacer.

**General information**

State: Published
Organisations: Section for Veterinary Epidemiology and public sector consultancy, Division of Veterinary Diagnostics and Research, National Veterinary Institute, National Food Institute, Department of Informatics and Mathematical Modeling, Division of Microbiology and Risk Assessment
Pages: 177-181
Publication date: 2004
Peer-reviewed: Yes

**Publication information**

Journal: BERLINER UND MUNCHENER TIERARZTLICHE WOCHENSCHRIFT
Volume: 117
Issue number: 5-6
ISSN (Print): 0005-9366
Ratings:
- BFI (2019): BFI-level 1
- Web of Science (2019): Indexed yes
- BFI (2018): BFI-level 1
- Web of Science (2018): Indexed yes
- BFI (2017): BFI-level 1
- Scopus rating (2017): CiteScore 0.81 SJR 0.363 SNIP 0.566
- Web of Science (2017): Impact factor 0.699
- Web of Science (2017): Indexed yes
- BFI (2016): BFI-level 1
- Scopus rating (2016): CiteScore 0.6 SJR 0.35 SNIP 0.283
- Web of Science (2016): Impact factor 0.609
- BFI (2015): BFI-level 1
- Scopus rating (2015): CiteScore 0.7 SJR 0.439 SNIP 0.387
- Web of Science (2015): Impact factor 0.65
- BFI (2014): BFI-level 1
- Scopus rating (2014): CiteScore 0.77 SJR 0.407 SNIP 0.62
- Web of Science (2014): Impact factor 0.819
- BFI (2013): BFI-level 1
- Scopus rating (2013): CiteScore 0.79 SJR 0.438 SNIP 0.547
- Web of Science (2013): Impact factor 0.931
- ISI indexed (2013): ISI indexed yes
- BFI (2012): BFI-level 1
- Scopus rating (2012): CiteScore 0.72 SJR 0.367 SNIP 0.422
- Web of Science (2012): Impact factor 0.887
- ISI indexed (2012): ISI indexed yes
- BFI (2011): BFI-level 1
- Scopus rating (2011): CiteScore 0.8 SJR 0.388 SNIP 0.644
- Web of Science (2011): Impact factor 0.82
- ISI indexed (2011): ISI indexed yes
- BFI (2010): BFI-level 1
- Scopus rating (2010): SJR 0.349 SNIP 0.729
Use of existing surveillance data to detect welfare problems in Danish cattle: An evaluation of available data sources, with detection of existing herd health problems and associated risk factors

General information
State: Published
Organisations: Division of Microbiology and Risk Assessment, National Food Institute, Section for Veterinary Epidemiology and public sector consultancy, Division of Veterinary Diagnostics and Research, National Veterinary Institute
Contributors: Hill, A., Chriel, M., Jensen, V. F., Vaarst, M., Stockmarr, A., Bruun, J., Greiner, M.
Publication date: 2004

Publication information
Publisher: International Epilab
Edition: Theme 6
Original language: English
Source: orbit
Source-ID: 232134
Research output: Research › Report – Annual report year: 2004

The distribution of particles in the plane dispersed by a simple 3-dimensional diffusion process

Populations of particles dispersed in the 2-dimensional plane from a single pointsource may be grouped as focus expansion patterns, with an exponentially decreasing density, and more diffuse patterns with thicker tails. Exponentially decreasing distributions are often modelled as the result of 2-dimensional diffusion processes acting to disperse the particles, while thick-tailed distributions tend to be modelled by purely descriptive distributions. Models based on the Cauchy distribution have been suggested, but these have not been related to diffusion modelling. However, the distribution of particles dispersed from a point source by a 3-dimensional Brownian motion that incorporates a constant drift, under the condition that the particle starts at a given height and is stopped when it reaches the xy plane (zero height) may be shown to result in both slim-tailed exponentially decreasing densities, and thick-tailed polynomially decreasing densities with infinite mean travel distance from the source, depending on parameter values. The drift in the third coordinate represents gravitation, while the drift in the first and second represents a (constant) wind. Conditions for the density having exponentially decreasing tails is derived in terms of gravitation and wind, with a special emphasis on applications to light-weighted particles such as fungal spores.

General information
State: Published
Organisations: Section for Veterinary Epidemiology and public sector consultancy, Division of Veterinary Diagnostics and Research, National Veterinary Institute
Contributors: Stockmarr, A.
Pages: 461-469
Publication date: 2002
Comment on Stockmarr's "Likelihood ratios for evaluating DNA evidence when the suspect is found through a database search - The author replied as follows

General information
State: Published
Organisations: University of Copenhagen
Contributors: Stockmarr, A.
Pages: 978-980
Publication date: 2001
Peer-reviewed: Yes

Publication information
Journal: Biometrics
Volume: 57
Issue number: 3
ISSN (Print): 0006-341X
Ratings:
BFI (2019): BFI-level 2
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 1.5 SJR 2.14 SNIP 1.215
Web of Science (2017): Impact factor 1.524
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 1.35 SJR 1.558 SNIP 1.029
Web of Science (2016): Impact factor 1.329
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 1.66 SJR 1.98 SNIP 1.373
Web of Science (2015): Impact factor 1.36
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 1.57 SJR 2.228 SNIP 1.395
Web of Science (2014): Impact factor 1.568
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 1.57 SJR 2.085 SNIP 1.287
Web of Science (2013): Impact factor 1.521
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): CiteScore 1.69 SJR 1.709 SNIP 1.394
Web of Science (2012): Impact factor 1.412
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): CiteScore 1.73 SJR 2.114 SNIP 1.531
Web of Science (2011): Impact factor 1.827
Forekomsten af utilsigtede hændelser på sygehuse

General information
State: Published
Organisations: Section for Veterinary Epidemiology and public sector consultancy, Division of Veterinary Diagnostics and Research, National Veterinary Institute
Contributors: Schiøler, T., Lipczak, H., Pedersen, B., Mogensen, T., Bech, K., Stockmarr, A.
Pages: 5370-5378
Publication date: 2001
Peer-reviewed: Yes

Publication information
Journal: Ugeskrift for Laeger
Volume: 163
Issue number: 39
ISSN (Print): 0041-5782
Ratings:
BFI (2019): BFI-level 1
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 0.04 SJR 0.115 SNIP 0.02
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 0.02 SJR 0.118 SNIP 0.056
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 0.03 SJR 0.124 SNIP 0.082
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 0.05 SJR 0.134 SNIP 0.121
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 0.06 SJR 0.142 SNIP 0.125
ISI indexed (2013): ISI indexed no
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 0.08 SJR 0.147 SNIP 0.151
ISI indexed (2012): ISI indexed no
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 0.1 SJR 0.144 SNIP 0.162
ISI indexed (2011): ISI indexed no
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.161 SNIP 0.17
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.158 SNIP 0.201
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.158 SNIP 0.173
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.148 SNIP 0.16
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 0.141 SNIP 0.164
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 0.145 SNIP 0.179
Scopus rating (2004): SJR 0.17 SNIP 0.209
Scopus rating (2003): SJR 0.144 SNIP 0.182
Scopus rating (2002): SJR 0.141 SNIP 0.145
Scopus rating (2001): SJR 0.145 SNIP 0.187
Scopus rating (2000): SJR 0.139 SNIP 0.19
Scopus rating (1999): SJR 0.143 SNIP 0.184

Original language: Danish

Bibliographical note
In Danish. Translated title: "The Occurrence of Adverse Events in Hospitals"
Source: orbit
Source-ID: 239568
Research output: Research - peer-review › Journal article – Annual report year: 2001

Kvalitetsudvikling af patientforløb i almen praksis baseret på forbedret tilgængelighed af diagnostiske undersøgelser: Et samarbejde mellem Københavns Praktiserende Lægers Laboratorium, Dansk Selskab for Almen Medicin og DSI Institut for Sundhedsvæsen

General information
State: Published
Organisations: Section for Veterinary Epidemiology and public sector consultancy, Division of Veterinary Diagnostics and Research, National Veterinary Institute
Contributors: Christensen, M., Stockmarr, A., Frølich, A.
Publication date: 2001

Publication information
Publisher: DSI Institut for Sundhedsvæsen
Original language: Danish
Source: orbit
Source-ID: 241853
Research output: Research › Report – Annual report year: 2001

Diffusion modelling of spore dispersal using non-constant settling rates

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
En model for sygdomsspredning mellem afgrøder og vilde planter

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Contributors: Stockmarr, A., Østergård, H., Andreasen, V., Munk, L.
Pages: 43-47
Publication date: 2000
Peer-reviewed: Unknown

Publication information
Journal: Miljøforsknin
Issue number: 43
ISSN (Print): 0907-4678
Original language: Danish
Source: orbit
Source-ID: 301499
Research output: Communication › Journal article – Annual report year: 2000

Letter to the editor of Biometrics - The authors replied as follows

General information
State: Published
Organisations: Unknown
Contributors: Stockmarr, A.
Pages: 1275-1276
Publication date: 2000
Peer-reviewed: Yes

Publication information
Journal: Biometrics
Volume: 56
Issue number: 4
ISSN (Print): 0006-341X
Ratings:
BFI (2019): BFI-level 2
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 1.5 SJR 2.14 SNIP 1.215
Web of Science (2017): Impact factor 1.524
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 1.35 SJR 1.558 SNIP 1.029
Web of Science (2016): Impact factor 1.329
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 1.66 SJR 1.98 SNIP 1.373
Web of Science (2015): Impact factor 1.36
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 1.57 SJR 2.228 SNIP 1.395
Matematisk modellering af sygdomsspredning mellem afgrøder og wilde planter

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Contributors: Stockmarr, A.
Publication date: 2000
Peer-reviewed: No
Event: Abstract from Faglig dag PBK, Risø, Denmark.
Source: orbit
Source-ID: 244628
Research output: Research - peer-review › Letter – Annual report year: 2000

Observed patterns of dispersal of wheat yellow rust spores from a point source

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Contributors: Stockmarr, A.
Om brug og misbrug af sandsynlighedsregning ved vægtning af DNA-profil evidens

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Contributors: Stockmarr, A.
Publication date: 2000
Peer-reviewed: No
Event: Abstract from Møde på Institut for Matematik og Fysik, Roskilde Universitetscenter, Roskilde (DK), 27 Apr,.
Source: orbit
Source-ID: 300941
Research output: Research › Conference abstract for conference – Annual report year: 2000

Simulation of spatial stochastic models for spread of spores between fields and surrounding natural populations

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Contributors: Stockmarr, A.
Publication date: 2000
Peer-reviewed: No
Event: Abstract from European Science Foundation workshop on environmental implications of genetically modified plants with fungal disease resistance, Roskilde (DK), 10-11 Nov,.
Source: orbit
Source-ID: 301613
Research output: Research › Conference abstract for conference – Annual report year: 2000

Stochastic models for the spatial development of a fungal plant disease

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Contributors: Stockmarr, A.
Publication date: 2000
Peer-reviewed: No
Event: Abstract from Meeting at Copenhagen University, Department of Biostatistics, Copenhagen (DK), 2 Oct,.
Source: orbit
Source-ID: 302139
Research output: Research › Conference abstract for conference – Annual report year: 2000

The choice of hypotheses in the evaluation of DNA profile evidence

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Contributors: Stockmarr, A.
Pages: 143-159
Publication date: 2000

Host publication information
Title of host publication: Statistical science in the courtroom
Place of publication: Berlin
Publisher: Springer
Editor: Gastwirth, J.
ISBN (Print): 0-287-98997-8

General information
State: Published
Organisations: Section for Veterinary Epidemiology and public sector consultancy, Division of Veterinary Diagnostics and Research, National Veterinary Institute
Contributors: Stockmarr, A.
Number of pages: 143
Publication date: 2000

Host publication information
Title of host publication: Statistical Science in the Courtroom
Place of publication: New York
Publisher: Springer
ISBN (Print): 0-387-98997-8
Source: orbit
Source-ID: 241858
Research output: Research › Book chapter – Annual report year: 2000

Brug og misbrug af sandsynlighedsteori i retsmedicinske evalueringer af DNA-profiler

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Contributors: Stockmarr, A.
Publication date: 1999
Peer-reviewed: No
Event: Abstract from PBK-Seminar, Risø, Denmark.
Source: orbit
Source-ID: 310586
Research output: Research › Conference abstract for conference – Annual report year: 1999

DNA-fingeraftryk i kriminalsager - kan man dømme efter store tals lov?

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Contributors: Stockmarr, A.
Publication date: 1999
Peer-reviewed: No
Event: Abstract from Møde i Institut for Folkesundhedsvidenskab, København (DK), 11 May,.
Source: orbit
Source-ID: 299289
Research output: Research › Conference abstract for conference – Annual report year: 1999

Likelihood ratios for evaluating DNA evidence when the suspect is found through a database search

General information
State: Published
Organisations: Section for Veterinary Epidemiology and public sector consultancy, Division of Veterinary Diagnostics and Research, National Veterinary Institute
Contributors: Stockmarr, A.
Pages: 671-677
Publication date: 1999
Peer-reviewed: Yes

Publication information
Journal: Biometrics
Volume: 55
BFI (2019): BFI-level 2
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 1.5 SJR 2.14 SNIP 1.215
Web of Science (2017): Impact factor 1.524
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 1.35 SJR 1.558 SNIP 1.029
Web of Science (2016): Impact factor 1.329
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 1.66 SJR 1.98 SNIP 1.373
Web of Science (2015): Impact factor 1.36
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 1.57 SJR 2.228 SNIP 1.395
Web of Science (2014): Impact factor 1.568
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 1.57 SJR 2.085 SNIP 1.287
Web of Science (2013): Impact factor 1.521
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): CiteScore 1.69 SJR 1.709 SNIP 1.394
Web of Science (2012): Impact factor 1.412
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): CiteScore 1.73 SJR 2.114 SNIP 1.531
Web of Science (2011): Impact factor 1.827
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.057 SNIP 1.3
Web of Science (2010): Impact factor 1.764
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 2.309 SNIP 1.464
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 2.203 SNIP 1.643
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.815 SNIP 1.457
Scopus rating (2006): SJR 1.711 SNIP 1.589
Scopus rating (2005): SJR 1.944 SNIP 1.486
Scopus rating (2004): SJR 1.928 SNIP 1.337
Scopus rating (2003): SJR 2.127 SNIP 1.532
Scopus rating (2002): SJR 1.882 SNIP 1.179
Scopus rating (2001): SJR 1.563 SNIP 1.398
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 1.779 SNIP 1.419
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 1.957 SNIP 1.707
Original language: English
Source: orbit
Limits of autoregressive processes with a special emphasis on relations to cointegration theory

General information
State: Published
Organisations: University of Copenhagen
Contributors: Stockmarr, A., Jacobsen, M.
Publication date: 1996

Publication information
Original language: English
Source: orbit
Source-ID: 244620
Research output: Research › Ph.D. thesis – Annual report year: 1996

Gaussian Diffusions and Autoregressive Processes: Weak Convergence and Statistical Inference

General information
State: Published
Organisations: Section for Veterinary Epidemiology and public sector consultancy, Division of Veterinary Diagnostics and Research, National Veterinary Institute
Contributors: Stockmarr, A., Jacobsen, M.
Pages: 403-419
Publication date: 1994
Peer-reviewed: Yes

Publication information
Volume: 21
Issue number: 4
ISSN (Print): 0303-6898
Ratings:
BFI (2019): BFI-level 2
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 1.09 SJR 1.729 SNIP 1.4
Web of Science (2017): Impact factor 0.898
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 1.14 SJR 1.595 SNIP 1.316
Web of Science (2016): Impact factor 0.908
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 0.98 SJR 1.46 SNIP 1.175
Web of Science (2015): Impact factor 0.908
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 0.9 SJR 1.555 SNIP 1.024
Web of Science (2014): Impact factor 0.867
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 1.24 SJR 2.157 SNIP 1.512
Web of Science (2013): Impact factor 1.063
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): CiteScore 1.38 SJR 2.266 SNIP 1.391
Web of Science (2012): Impact factor 1.169