

A Global Perspective On Automatic Milking Systems Rules And Regulations

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Introduction

There are a variety of rules and regulations in the many milk-producing countries of the world governing the production of raw milk, including the general areas of:

- Milk Quality and Safety
- Milking Machine Performance, and
- Worker and Animal Welfare.

The existing rules and regulations for milk production have been developed over many years and are meant to apply to the types milking equipment and management practices commonly used in the field. Automatic milking (AM), particularly when it is unattended by a person (as is the common implementation), has required that these regulatory structures be re-examined to clarify the desired end goal and determine how they might be best applied to this new technology and management situation. This paper will present an overview of the challenges in adapting existing rules and regulations to the situations in which AM is employed.

The Regulatory Process in the European Union

EEC Directive 92/46/EEC defines the requirements for animal health and the milk quality parameters of Somatic Cell Count and Bacteria Count in the EU (EEC, 1992). EEC Directive 89/362/EEC establishes the general conditions for hygiene on dairy farms (EEC, 1989). This directive states that:

Before the milking of the individual cow, the milker must inspect the appearance of the milk. If any physical abnormality is detected, milk from the cow must be withheld from delivery.

Milk from cows with clinical udder disease must be milked last or by a separate machine or hand-stripped and the milk withheld from delivery.

Before milking of a cow is started, the teats, udder and if necessary adjacent parts of the groin, thigh and abdomen of the cow must be clean.

Two proposals to change of 89/362/EEC were made to exempt AM from the requirement to examine foremilk before putting milk from any cow into the bulk milk storage tank. Neither proposal obtained a qualified majority in preliminary voting at the May 2001 meeting of the Commission resulting in no formal vote and no action on the proposals. The current Directives, therefore, are still active, and individual national authorities must decide how to apply the

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First North American Conference on Robotic Milking, 2002 *Automatic milking, a better understanding* A. Meijering, H. Hogeveen, C.J.A.M. de Koning, 2023-08-28 In 2000 the book *Robotic Milking* reflecting the proceedings of an International Symposium which was held in The Netherlands came out At that time commercial introduction of automatic milking systems was no longer obstructed by technological inadequacies Particularly in a few west European countries systems were being installed at an increasing rate However it was recognised that the changeover from traditional to automatic milking affected the farming operation herd management and control of milk quality profoundly and that many of the implications were still unknown So new challenges in various fields of dairy farming and new research areas emerged Since this previous International Symposium much has happened In general automatic milking has been adopted as a realistic alternative for milking in the traditional milking parlour Systems have gradually been improved and maybe even more importantly farmers have become more familiar with their potential and limitations both technically and in herd management The number of farms milking with an automatic milking system has worldwide increased to more than 2 200 by the end of 2003 From 2000 to now the level of scientific knowledge on various aspects and consequences of automatic milking has increased largely as well because of research efforts all over the world A significant share of these efforts has been made within the framework of a EU granted project on the implications of the introduction of automatic milking on dairy farms Some seven research institutes and six industrial companies from six countries joined their expertise and experience in order to facilitate a widespread adoption of automatic milking without undesirable side effects This book reflects the knowledge on automatic milking generated all over the world in the last few years Its contents can therefore be regarded as the present state of knowledge in the field of automatic milking for a better understanding [Encyclopedia of Dairy Sciences](#), 2011-03-25 Dairy Science Four Volume Set includes the study of milk and milk derived food products examining the biological chemical physical and microbiological aspects of milk itself as well as the technological processing aspects of the transformation of milk into its various consumer products including beverages fermented products concentrated and dried products butter and ice cream This new edition includes information on the possible impact of genetic modification of dairy animals safety concerns of raw milk and raw milk products peptides in milk dairy based allergies packaging and shelf life and other topics of importance and interest to those in dairy research and industry Fully reviewed revised and updated with the latest developments in Dairy Science Full color inserts in each volume illustrate key concepts Extended index for easily locating information [Agriculture Digitalization and Organic Production](#) Andrey Ronzhin, Alexander Kostyaev, 2022-11-16 This book includes selected papers from the Second International Conference on Agriculture Digitalization and Organic Production ADOP 2022 held in St Petersburg Russia during June 06 08 2022 The topics covered in the book are ground robotic systems in crop production unmanned aerial vehicles in crop production

aerospace monitoring tools in crop production robotic animal husbandry digitalization of technological processes of agricultural production evaluation of the effectiveness of digital technologies for the production of organic products rational nature management and ecology in agricultural production technologies for the production of organic agricultural products market analysis of organic agricultural products and legal aspects of organic production Precision Dairy Management

,2010 Fifth International Dairy Housing Conference Kevin A. Janni,2003 **Smart and Sustainable Food**

Technologies Shalini Sehgal,Barinderjit Singh,Vasudha Sharma,2022-05-13 This book presents a comprehensive view of emerging smart technologies in various food processing sectors Specifically it covers smart technologies applied in food production food manufacturing food packaging storage distribution and food supply chain Contributing authors are the key scientists with diverse backgrounds in either industry or academia The book contains four parts with four chapters each presenting recent smart technologies developed in their respective areas Part I primarily focuses on the recent smart food production innovations such as precision agriculture vertical farming automation robotics livestock technology modern greenhouse practices artificial intelligence and block chain that dramatically increase the quality of raw materials for the food industry Part II provides the current knowledge and developments related to the recent smart technologies in manufacturing pertaining to various food sectors non thermal food preservation technologies and 3D printing developed for the food manufacturing industries that improve the organoleptic and nutritional quality enhance chemical and microbial safety as well as cost effectiveness and convenience of processed foods Part III covers smart technologies to ensure food safety in the supply chain with monitoring and surveillance of food contamination use of IoT and blockchain for food traceability and neural network approach for risk assessment Part IV provides expert opinions on using smart technologies for minimizing waste and maximizing co product recovery in food processing upcycling technologies in food and sustainable value stream mapping in the food industry This book will be a useful resource to graduate undergraduate students and researchers in advanced food technology practicing technologists engineers in the food and related industries food packaging industry entrepreneurs and other scientists and technologists in smart and sustainable processes who seek information on design and development of these processes Dairy Processing G Smit,2003-07-29 The dairy sector continues to be at the forefront of innovation in food processing With its distinguished editor and international team of contributors Dairy processing improving quality reviews key developments and their impact on product safety and quality The first two chapters of part one provide a foundation for the rest of the book summarising the latest research on the constituents of milk and reviewing how agricultural practice influences the quality of raw milk This is followed by three chapters on key aspects of safety good hygienic practice improvements in pasteurisation and sterilisation and the use of modelling to assess the effectiveness of pasteurisation A final sequence of chapters in part one discuss aspects of product quality from flavour texture shelf life and authenticity to the increasingly important area of functional dairy products Part two reviews some of

the major technological advances in the sector The first two chapters discuss developments in on line control of process efficiency and product quality They are followed by chapters on new technologies to improve qualities such as shelf life including high pressure processing drying and the production of powdered dairy products and the use of dissolved carbon dioxide to extend the shelf life of milk Part three looks in more detail at key advances in cheese manufacture Dairy processing improving quality is a standard reference for the dairy industry in improving process efficiency and product quality Reviews key developments in dairy food processing and their impact on product safety and quality Summarises the latest research on the constituents of milk and reviews how agricultural practice influences the quality of raw milk Outlines the key aspects of safety good hygienic practice improvements in pasteurisation and sterilisation and the use of modelling to assess the effectiveness of pasteurisation

Recent Developments on Bovine Mastitis ,2024-07-03 Bovine mastitis is a problem well known to anyone who works within or is involved with the dairy cattle industry Progress in the understanding and approaches to treatment and control is ongoing and rapid Following the most recent literature is difficult for busy professionals Therefore a useful comprehensive summary is always welcome This book provides that summary to all farmers veterinarians students scientists and anyone else who is interested to learn about or update their knowledge of the treatment and control of bovine mastitis Chapters address such topics as traditional and alternative treatment strategies traditional and novel control strategies and biosecurity and food safety They also discuss the two main forms of mastitis clinical and subclinical bovine mastitis The book provides literature reviews and novel findings related to bovine mastitis providing readers with a comprehensive resource

Engineering Applications in Livestock Production Ayon Tarafdar,Ashok Pandey,Gyanendra Kumar Gaur,Mukesh Singh,Hari Om Pandey,2024-01-20 Engineering Applications in Livestock Production covers the recent advancements and technological developments in the field of livestock production engineering in great detail The major advances covered in this book include the use of artificial intelligence image processing Internet of Things novel animal product processing technologies farm automation systems sensor technology bioengineering practices and even engineered housing systems among others The book includes applications of emerging sensor based and intelligent techniques systems in the field of livestock production and management The book will have separate chapters dedicated to innovative approaches in the livestock sector such as artificial intelligence micro and nano sensors IoT image processing and farm automation Specialists contribution of chapters provide comprehensive details while assisting the understanding of the concepts

Precision livestock farming '09 C. Lokhorst,P.W.G. Groot Koerkamp,2023-09-04 Precision livestock farming is becoming ever more relevant as the agricultural industry struggles to come to terms with aspects such as animal welfare animal disease the environment economics traceability robots and livestock management Whilst some benefits have proved elusive others contribute positively to today s agriculture Research continues to be necessary and needs to be reported and disseminated to a wide audience These proceedings contain the reviewed papers from the 4th European Conference on

Precision Livestock Farming The papers reflect the wide range of disciplines that impinge upon precision livestock farming including feeding dairy data quality poultry and pig applications livestock environment wireless sensing dairy fertility and calving management animal identification mastitis detection and locomotion The broad range of research topics reported are a valuable resource for researchers advisors teachers and professionals in agriculture Also note that the reviewed papers from the 7th European Conference on Precision Agriculture are presented in a companion publication Indicators of milk and beef quality J.F. Hocquette, S. Gigli, 2023-08-28 The farming and agri food sectors are faced with an increasing demand by consumers for high quality products The current major questions are thus how to define quality and how to increase the quality of animal products to satisfy these new requirements This is the reason why the Cattle Commission of the European Association of Animal Production EAAP organised a specific session on this topic at its Annual Meeting which was held in Bled Slovenia in September 2004 This session dealt with the manipulation and evaluation of bovine milk and meat composition and quality with various indicators commercial physical biochemical molecular or other These indicators are any method biological trait or physical property which may be useful to predict a quality trait Quality includes sensory traits nutritional properties of products their ability to be processed and also any consideration about traceability genetic geographic or nutritional traceability Thus the full spectrum of quality attributes are discussed Indicators may also be considered as predictors In this respect contributors discussed the detection early in life of the ability of animals to produce meat or milk of high quality Indicators may also be useful for consumers when they buy meat or milk as official or commercial signs of quality All the review papers and the short communications which were presented in this session will be in this EAAP publication entitled Indicators of milk and beef quality Additional papers either presented in 2003 in the EAAP Annual Meeting or from invited authors were added to complete the publication

Precision livestock farming Sidney Cox, 2023-08-28 Precision Livestock presents the latest scientific results from worldwide research field studies and practical application The book contains peer reviewed papers that were presented at the 1st European Conference on Precision Livestock Farming The papers focus on physiological identification and monitoring of animals on farm and in transit and on the operation of automatic milking systems Major objectives are secure methods of animal identification for traceability animal welfare and hygiene The economic and health effects of implementing precision livestock husbandry are featured in many of them This first conference was held in parallel with the 4th European Conference on Precision Agriculture the links between both technologies were drawn and the possible interactions between them were shown for the first time The potential is to integrate both technologies to encompass the whole farm Peer reviewed papers from the Precision Agriculture conference are presented in a companion proceedings Precision Agriculture

Ergonomics for Design and Innovation Debkumar Chakrabarti, Sougata Karmakar, Urmi R. Salve, 2022-06-06 This book presents the proceedings of the 19th International Conference of the Indian Society of Ergonomics HWWE held in Guwahati India on December 13 2021 By

highlighting the latest theories and models as well as cutting edge technologies and applications and by combining findings from a range of disciplines including engineering design health care management computer science and behavioral science it provides researchers and practitioners alike with a comprehensive timely guide on user centered design for quality life human factors and ergonomics design applications cognitive processing and response It also offers an excellent source of innovative ideas to stimulate future discussions and developments aimed at applying knowledge and techniques to optimize system performance while at the same time promoting the health safety and well being of individuals The proceedings includes papers from researchers and practitioners scientists and physicians institutional leaders managers and policy makers that contribute to constructing the human factors and ergonomics approach across a variety of methodologies domains and productive sectors

Livestock Handling and Transport, 6th Edition Temple Grandin,2024-12-04 Edited by world renowned animal scientist Dr Temple Grandin this book integrates scientific research and industry literature on cattle pigs poultry sheep goats deer and horses in both the developed and developing world to provide a practical guide to humane handling and minimizing animal stress Reviewing the latest research on transport systems restraint methods and facilities for farms and slaughterhouses this new edition expands on new developments in the field as well as covering the integration of and potential welfare benefits and costs of technological advances such as virtual fencing An important read for animal scientists animal welfare researchers and practitioners and veterinarians this straightforward text is also a valuable resource for stock people and farmers

Advances in precision livestock farming Professor Daniel Berckmans,2022-06-28 Provides a comprehensive review of the recent developments in precision livestock technologies from wearable sensors to thermal imaging techniques Covers the latest research on the application of precision livestock technologies in monitoring livestock health Highlights the potential of precision livestock technologies to reduce the environmental impact of livestock production

Advances in breeding of dairy cattle Prof. Julius van der Werf,Prof. Jennie E. Pryce,2019-12-24 Particular focus on the challenges in breeding and lack of genetic diversity in modern dairy cattle Explores ways of improving non production traits in cattle for more sustainable production Detailed review of key developments in reproductive technologies and breeding programmes to further advance dairy cattle breeding

Artificial Intelligence in the Food Industry Insha Zahoor,Sajad Ahmad Wani,Tariq Ahmad Ganaie,2025-01-30 In this changing world of food processing and handling efficiency and safety are paramount Artificial Intelligence in the Food Industry Enhancing Quality and Safety offers a groundbreaking exploration of how artificial intelligence AI technologies can address these critical needs This book explores the transformative potential of AI machine learning ML and deep learning DL algorithms in revolutionizing the food industry By overcoming the limitations of human involvement AI ensures a more reliable demand supply chain and enhances food safety As the global population grows and food consumption reaches unprecedented levels the demand for innovative solutions is urgent This book demonstrates how intelligent systems can accurately assess food quality implement control mechanisms categorize

foods and conduct predictive analyses Such advancements are reshaping sectors including dairy bakery beverages and fruits and vegetables making this an indispensable guide for food production and safety professionals It explores several cutting edge topics such as the role of ML and computer vision in the agri food industry the potential of 3D printing and the integration of AI with sensory technologies like electronic noses electronic tongues and near infrared spectroscopy These insights highlight how AI can significantly enhance food quality and productivity benefiting both consumers and industry players Artificial Intelligence in the Food Industry not only showcases current advancements but also emphasizes the need for ongoing research and innovation By inviting readers to explore AI s transformative potential in food production and service this book ensures a safer more efficient and sustainable future for the food industry A vital resource for researchers scientists and professionals in the food industry this book presents comprehensive information on ML techniques to improve food quality AI applications in pesticide management food inspection grading using image processing and the use of robots for food safety and warehouse management

Precision livestock farming applications Ilan Halachmi, 2023-08-07 Precision Livestock Farming PLF technology is a reality PLF is a combination of developing animal sensing sensors tools and decision making process at the farm level It also has the potential to support animal feed suppliers human food retailers and other players along the supply chain to make better choices The current challenge for PLF is the integration of the technology in the majority of the farms and not only to the pioneering farms This book consist of full length peer reviewed papers combined with questions and answers sections It is the result of a joint session hosted by the European Association of Animal Production and brings together research focusing on real time interpretation of the combination of sensor development industry animal genetics animal nutrition and animal health Unique of this cross disciplinary approach is that animal focused scientists engineers companies as well as farmers organizations have interacted and combined their strengths and views Precision Livestock Farming Applications Making sense of sensors to support farm management provides an update on the state of the art of PLF in interaction with the other scientific and applicative expertise It is of interest for researchers students professionals farmers and livestock industry concerned with livestock production management

Proceedings of the New Zealand Society of Animal Production ... Annual Conference New Zealand Society of Animal Production. Annual Conference, 2005

Whispering the Strategies of Language: An Emotional Quest through **First North American Conference On Robotic Milking**

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