# Bull Semen Collection And Analysis For Artificial Insemination

Scores of talented and dedicated people serve the forensic science community, performing vitally important work. However, they are often constrained by lack of adequate resources, sound policies, and national support. It is clear that change and advancements, both systematic and scientific, are needed in a number of forensic science disciplines to ensure the reliability of work, establish enforceable standards, and promote best practices with consistent application. Strengthening Forensic Science in the United States: A Path Forward provides a detailed plan for addressing these needs and suggests the creation of a new government entity, the National Institute of Forensic Science, to establish and enforce standards within the forensic science community. The benefits of improving and regulating the forensic science disciplines are clear: assisting law enforcement officials, enhancing homeland security, and reducing the risk of wrongful conviction and exoneration. Strengthening Forensic Science in the United States gives a full account of what is needed to advance the forensic science disciplines, including upgrading of systems and organizational structures, better training, widespread adoption of uniform and enforceable best practices, and mandatory certification and accreditation programs. While this book provides an essential call-to-action for congress and policy makers, it also serves as a vital tool for law enforcement agencies, criminal prosecutors and attorneys, and forensic science educators.

Cattle play a fundamental role in animal agriculture throughout the world. They not only provide us with a vital food source, but they also provide us with fertilizer and fuel. Keeping reproduction levels at an optimum level is therefore essential, but this is often a complicated process, especially with modern, high yielding cows. Written in a practical and user-friendly style, this book aims to help the reader understand cattle reproduction by explaining the underlying physiology of the reproductive process and the role and importance of pharmacology and technology, and showing how management techniques can improve reproductive efficiency. This edition includes: Recent research findings on the physiology of the oestrous cycle and its control; New techniques for monitoring and manipulating reproduction, including pregnancy diagnosis and embryo transfer; Advice on identifying common infertility problems and how to prevent and treat them. Reproduction Cattle 3e is essential reading for veterinary and agricultural students, as well as veterinarians and farmers involved in cattle reproduction.

Now in full color, Manual of Equine Reproduction, 3rd Edition provides a comprehensive look at the reproductive management of horses, including management of stallions, pregnant mares, and neonatal foals. Expert authors use a concise, practical approach in discussing improved therapies and treatments in equine breeding. You'll enhance your skills and knowledge with this book's detailed coverage of techniques used in reproductive examination, breeding procedures, pregnancy diagnosis, foaling, and reproductive tract surgery. A clinical emphasis includes a step-by-step format of possible scenarios from conception to breeding management. Practical information includes topics such as breeding with transported cooled or frozen semen, and caring for the broodmare and newborn foal. The organization of material corresponds to the course of study in veterinary school, so you can find topics easily. Chapter objectives and study questions at the beginning of each chapter guide you through the material and provide clear learning goals. Evaluation of Breeding Records chapter covers the importance of breeding records, and how to use them to evaluate stallion performance and optimize fertility. References are listed at the end of each chapter for further research and study. Full-color photographs and illustrations clearly depict procedures, and all drawings have been redrawn and improved. NEW Assisted Reproductive Technology chapter goes beyond embryo transfer. Updated content includes the latest advances in therapies and treatments. New content is added to two chapters, Reproductive Physiology of the Nonpregnant Mare and Manipulation of Estrus in the Mare. Thorough coverage of every aspect of equine reproduction provides a strong foundation for success in veterinary practice, including a discussion of the use of GnRH-analog deslorelin (Ovuplant) to hasten ovulation; aseptic technique for endometrial biopsy; use of transabdominal ultrasonography, especially in early pregnancy; determination of fetal gender by transrectal ultrasonography; aspiration testicular biopsy using a spring-loaded biopsy instrument; and procedure for surgical embryo transfer.

Studies with Bull and Ram Semen

Predicting fertility of fresh and frozen bull semen. Extenders for freezing ram semen. I.. II.

Semen Analysis in Animals and Man

Artificial Insemination in Farm Animals

Andrological Evaluation of Male Infertility

*This book on protocols in semen biology is a compilation of 20 chapters written by 15 experts from 5 Indian Council of Agricultural Research institutions, focusing on the basics of various procedures in semen biology with applications in animal and other allied sciences The information is presented in simple language with illustrative figures and colour microphotographs, making it understandable for readers of every level. It highlights recent findings, the comparative analysis of assays, protocols, points to ponder, background information and major references, and also compares various assays for evaluating a seminal parameters. The book provides a comprehensive resource for beginners, as well as academics, investigators and scientists of animal semen biology and relevant fields. Further, it offers valuable teaching material.*

*Dr K Chaudhry is First Author of Jaypee Brothers, Number One Medical Publishers in India. First book of Dr K Chaudhry, as also of Jaypee Brothers, was published during the year 1968. In addition, Dr K Chaudhry is Youtube Celebrity with fans in all Countries. He is Famous for his English Versions of Bollywood and Pakistani Songs. Patrick French's India A Portrait has three pages on Dr K Chaudhry. His versatility shows up in his Horoscope software, Global Malls Yellow Pages, BMI Registered lyrics. Google DOCTORKC to view Abhishek Bachhan tweet, Patrich French interactions, and huge number of songs.*

*Cryopreservation has been reported to damage approximately 40 to 50% of viable sperm in bull semen. The aims of the study were to compare the cryo-effectiveness of four substances used as cryoprotectants during the cryopreservation of Nguni semen, and also correlate Nguni sperm parameters assess by computer aided sperm analysis with fertility rate.*

*Effects of New Antibiotics on Postthaw Survival and Fertility of Frozen Bull Spermatozoa*

*Reproduction in Farm Animals*

*A Path Forward*

*Sperm Chromatin*

*Quality of Frozen-thawed Nguni Bull Sperm Following Analysis Using the Computer Aided Sperm Analyser (CASA)*

***Sperm DNA damage is common and has been associated with reduced rates of conception, impaired embryonic development and increased risk of miscarriage. Although the exact causes of sperm DNA damage are unknown, it is clear that infertile men possess substantially higher levels of sperm DNA damage than do fertile men. Written by leading, internationally renowned clinicians and basic scientists with expertise in sperm DNA, Sperm Chromatin: Biological and Clinical Applications in Male Infertility and Assisted Reproduction provides readers with a thoughtful and comprehensive review of the biological and clinical significance of sperm DNA damage. The work covers the fundamental principles of sperm chromatin architecture and function, the proposed modes of DNA damage and repair, the tests of sperm DNA damage, the clinical aspects of DNA damage and the impact of DNA damage on reproductive outcome. Unlike any other title on the topic, Sperm Chromatin: Biological and Clinical Applications in Male Infertility and Assisted Reproduction is an invaluable addition to the literature and will serve as an indispensable resource for basic scientists with an interest in sperm biology and for urologists, gynecologists, reproductive endocrinologists, and embryologists working in the field of infertility.***

***This state-of-the-art laboratory manual includes 20 clinical protocols used daily for the investigation of the infertile male, presented with easy to understand, step-by-step methodology. The protocols are arranged from routine to advanced laboratory procedures common to clinical practice, including computer-assisted semen analysis, sperm preparation for IUI by density gradient and swim-up, sperm cryopreservation, and sperm DNA fragmentation test by TUNEL method, among others. The methodology in each protocol follows best practice guidelines made clearer by professionally hand-drawn illustrations covering most of the important steps and equipment. The authors, hailing from the world-renowned Andrology Center at Cleveland Clinic, have over 50 years of combined first-hand experience in managing very busy diagnostic and research facilities in male infertility and andrology. The book will be an indispensable resource for thousands of laboratory technologists, clinicians and reproductive professionals (andrologists, embryologist, etc.) engaged in the diagnosis and management of infertile men around the world.***

***Since accidentally discovering the ability of glycerol on protecting cells from freezing damage, many researchers have been pursuing to develop cryopreservation methods of a very wide range of cells and some tissues, and these have found widespread applications in biology and medicine. From the point of view of living organisms, cryopreservation is a useful tool for ex situ conservation of genetic resources together with its contribution on conservation of their biodiversity. Cryopreservation in Eukaryotes includes totally 12 chapters, which have been written by the expert researchers in the field. The chapters are a comprehensive collection of the most frequently used methods for eukaryotes. With this book, every researcher will better understand the principles, background, and current status of cryopreservation in particular organisms.***

***A Practical Guide to Basic Laboratory Andrology***

***An Objective Approach to the Analysis of Sperm Motility and Morphology in Stallion Semen***

***Equine Breeding Management and Artificial Insemination***

***Manual of Sperm Function Testing in Human Assisted Reproduction***

***Medicine, Surgery, Reproduction, Nutrition, and Herd Health***

*Today, it is theoretically assumed that frozen storage of semen doses in liquid nitrogen guarantees sperm functionality indefinitely. However, there are few studies that objectively evaluate the effects of long-term storage on sperm quality parameters. In this study, we show a freezability analysis of bull semen stored for 1, 10, 25, 40 and 45 years at ?196 °C. Sperm viability and full sperm motility were analyzed by CASA system, and acrosome integrity was assessed with Coomassie blue staining. Our results showed that sperm viability and total sperm motility were not affected by long-term cryopreservation at ?196 °C. Specifically, we did not find any significant differences (p > 0.05) associated between different long-time storing analyzed; both parameters showed optimal values of sperm viability and total sperm motility (both over 60%). Additionally, the acrosomal integrity parameter was not affected, showing an optimal range (87±1.6 - 95±0.5%). We conclude that the sperm quality of bovine semen is not affected by long-term storage at ?196 °C. However, future field trials will be necessary in order to validate that both fertility and embryo viability are maintained for the times analyzed.*

*Selecting good-quality sperm for use in in-vitro fertilization is a key step in assisted reproduction. For many years purely morphological attributes have been used to assess suitability, but increasingly biochemical and molecular biological techniques are now identifying sperm with the best chances of producing viable and healthy embryos. Focusing on modern sperm function testing, this manual provides technical details of commonly used tests and gives an overview of the laboratory techniques used to evaluate sperm samples. Covering a variety of testing methods in detail, from manual and computer-assisted semen analysis to zona pellucida binding assays, and tests assessing sperm DNA damage such as the TUNEL assay. Describing the underlying science, practical advice for performing the tests is given, including tips for optimizing outcomes and trouble-shooting. This is an essential guide for reproductive medicine specialists, clinical andrologists, urologists and gynecologists working with sub-fertile men.*

*This practical, extensively illustrated handbook covers the procedures that are undertaken in andrology and ART laboratories to analyse and assess male-factor infertility, and to prepare spermatozoa for use in assisted conception therapy. The content is presented as brief, authoritative overviews of the relevant biological background for each area, plus detailed, step-by-step descriptions of the relevant analytical procedures. Each technical section includes pertinent quality control considerations, as well as the optimum presentation of results. In addition to the comprehensive 'basic' semen analysis, incorporating careful analysis of sperm morphology, the handbook provides established techniques for the use of computer-aided sperm analysis and sperm functional assessment. Throughout the handbook the interpretation of laboratory results in the clinical context is highlighted, and safe laboratory practice is emphasized. It is an invaluable resource to all scientists and technicians who perform diagnostic testing for male-factor infertility.*

*Cryopreservation in Eukaryotes*

*Sperm Functional Genome and Epigenome Regulating Bull Fertility and Sperm Freezability*

*Abnormal Morphology of Bovine Spermatozoa*

*Biological and Clinical Applications in Male Infertility and Assisted Reproduction*

*Reproduction in Cattle*

Bovine Reproduction is a comprehensive, current referenceproviding information on all aspects of reproduction in the bulland cow. Offering fundamental knowledge on evaluating andrestoring fertility in the bovine patient, the book also placesinformation in the context of herd health where appropriate for atruly global view of bovine theriogenology. Printed in full colorthroughout, the book includes 83 chapters and more than 550 images,making it the most exhaustive reference available on thistopic. Each section covers anatomy and physiology, breeding management,and reproductive surgery, as well as obstetrics and pregnancywastage in the cow. Bovine Reproduction is a welcomeresource for bovine practitioners, theriogenologists, and animalscientists, as well as veterinary students and residents with aninterest in the cow.

Offering the most current insights on horse breeding, this book covers the entire reproductive system, normal and abnormal mare physiology, and a wide range of reproductive problems commonly seen in both the mare and stallion. Coverage includes advanced reproductive techniques, with numerous breeding strategies to help you achieve optimal fertility rates. Features the most current information available on equine reproduction, including the latest therapies and treatments for breeding dysfunction, as well as advances in reproductive techniques Focuses on therapy and treatment to provide practitioners with quick access to key information Features the shared experience and valuable advice of world-renowned experts who have first-hand knowledge of which treatments and therapies are most effective

Master's Thesis from the year 2015 in the subject Biology - Zoology, , language: English, abstract: In the present study semen samples from NRF bulls were analysed for sperm viability, acrosome integrity and ATP content. The effect of incubation at 37 °C on sperm viability, acrosome integrity and ATP content was investigated on fresh and frozen semen samples from 20 NRF. Semen was incubated at 37 °C and the sperm quality parameters were analysed at 0 hr and after 6 and 24 hrs of incubation for both fresh and frozen samples. Sperm viability and acrosome integrity was assessed with flow cytometry and ATP content with luminometer. The incubation time at 37 °C had a significant effect on all studied parameters. However, ATP content was significantly more affected than sperm viability and acrosome integrity. After 24 hrs of incubation ATP content of frozen samples decreased approximately to 0 for all tested samples, while percentage of viability and acrosome integrity decreased by 78 ± 11.9 %. Percentage of AIL sperm cells of frozen samples decreased at corresponding rate as in fresh samples. Concerning ATP content there was however, a more marked decline in frozen samples compared to fresh samples during incubation. Sperm samples from eight NRF bulls with high and low fertility were also analysed for sperm viability, acrosome integrity and ATP content at 0 hr (right after thawing), 3, 6 and 24 hrs incubation at 37 °C. The ATP content adjusted for % AIL at 0 hr was significantly correlated with fertility measured as 56 days NRR, while % AIL or ATP content analysed separately were not correlated to field fertility.

Strengthening Forensic Science in the United States

Testing Fertility in Bulls

Filtration of Bovine Semen with Sephadex Ion-exchange Filter

Sperm Sexing and its Role in Livestock Production

Fertilization Characteristics of Spermatozoa Collected from Bulls Grazing Tall Fescue Pastures

**Designed for the mixed practice large animal veterinarian, veterinary students, and camelid caretakers alike, Llama and Alpaca Care covers all major body systems, herd health, physical examination, nutrition, reproduction, surgery, anesthesia, and multisystem diseases of llamas and alpacas. Written by world-renowned camelid specialists and experts in the field, this comprehensive and uniquely global text offers quick access to the most current knowledge in this area. With coverage ranging from basic maintenance such as restraint and handling to more complex topics including anesthesia and surgery, this text provides the full range of knowledge required for the management of llamas and alpacas. "..an essential text for anyone working with South American camelids." Reviewed by Claire E. Whitehead on behalf of Veterinary Record, July 2015 Over 500 full-color images provide detailed, highly illustrated coverage of all major body systems, physical examination, nutrition, anesthesia, fluid therapy, multisystem diseases, and surgical disorders. World-renowned camelid experts and specialists in the field each bring a specific area of expertise for a uniquely global text. Comprehensive herd health content includes handling techniques, vaccinations, biosecurity, and protecting the herd from predators. Coverage of anesthesia and analgesia includes the latest information on pharmacokinetics of anesthetic drugs, chemical restraint, injectable and inhalation anesthesia, neuroanesthesia, and pain management. Reproduction section contains information on breeding management, lactation, infertility, and embryo transfer. Nutrition information offers detailed nutritional requirements and discusses feeding management systems and feeding behavior.**

**The definitive and essential source of reference for all laboratories involved in the analysis of human semen.**

**Consumption of toxic endophyte-infected (E+) tall fescue pastures is known to have a negative impact on bull reproductive performance. Since decreased cleavage rates of embryos fertilized with spermatozoa from bulls grazing E+ tall fescue pastures have been observed in several studies using differing sets of bulls, technicians, pastures, and other methods of inducing tall fescue toxicosis (ergotamine tartrate), it is hypothesized that spermatozoa function from bulls grazing E+ is impaired in ways undetectable by gross semen examination. During a three-month grazing study, 6 Angus bulls were utilized to determine the effects of grazing E+ tall fescue pastures on growth performance and spermatozoa function. Bulls were appointed to graze Kentucky 31 tall fescue (Festuca arundinacea Schreb.) infected with Neotyphodium coenophialum, an ergot alkaloid producing endophyte (n=3) or Jesup tall fescue infected with non-ergot alkaloid producing endophyte (NTE) MaxQ[superscript TM] (n=3). Bulls were grouped by body weight (BW) and scrotal circumference (SC) to graze pastures from April 18-June 26, 2007. Blood samples, BW, SC, semen, and rectal temperatures (RT) were collected every 7 d. Scrotal temperatures (ST) were obtained before semen collection each week in June. Semen was evaluated for gross motility, morphology, and Computer Assisted Semen Analysis (CASA) parameters. Semen from a subset of bulls (n=2 per treatment) was used to assess spermatozoa ability to function utilizing in vitro assays. Growth performance was decreased in E+ bulls compared to bulls grazing NTE tall fescue pastures (P = 0.002). Concentrations of prolactin were reduced in bulls grazing E+ compared to bulls grazing NTE tall fescue pastures (P = 0.055). Motility post-thaw and during a 3-hour stress test were decreased (P = 0.024 and P**

**Effect of Forced Exercise Upon Reproduction of the Dairy Bull**

**My Uncle Oswald**

**Manual of Equine Reproduction - E-Book**

**An Inquiry Into the International Development and Control of Artificial Insemination in Animal Husbandry and an Analysis of Its Implications for the Economics of Agriculture ...**

**Stress testing used in vitro for the evaluation of sperm quality of fresh and frozen bull semen**

Reproductive technologies to assist in both human conception and animal breeding are increasingly in demand. These technologies, along with the advent of tissue engineering, have propelled the challenges of tissue collection, preservation, and banking to the research forefront. Using examples drawn from reproductive technologies, Reproductive Tissue Banking presents the scientific principles underlying tissue banking. These examples serve as models for the technology of banking other living tissues, including blood, bone marrow, cornea, and skin. In discussing research emerging from their laboratories and those of others, the authors meld fundamentals of biology, chemistry, and physics with the latest discoveries in the field to give the reader profound insight into research directions and ethical considerations crucial to the advancement of tissue banking. With its emphasis on human applications and concerns, this book provides a valuable supplement to short courses on tissue preservation and tissue engineering. Researchers in reproductive medicine, animal and veterinary science, and cryobiology will find this book, with its extensive bibliography, a very handy reference. * * Written by leading international researchers * Provides insightful discussions on reproductive tissue banking * Presents comprehensive citations to relevant literature, both current and historic * Discusses in vitro preservation of spermatozoa, oocytes, embryos, and gonadal tissues of mammals * Contains coverage of ethical considerations from a discussion of the splitting of embryos to an exploration of the protection of biodiversity

Artificial insemination (AI) using cryopreserved sperm has an important positive impact on cattle production. Fertility is the most critical trait controlling livestock production; however, molecular, cellular, and physiological determinants of bull fertility and sperm freezability are not well understood. Better understanding of molecular, cellular, and physiological underpinnings of bull fertility may increase the success rate of AI. The objective of this study was to test the hypothesis that expression dynamics of sperm nuclear proteins, post-translational modifications (PTM) of sperm Histone 4 (H4), and seminal plasma metabolome are associated with bull fertility and sperm freezability ($P = 0.043$). Flow cytometry experiments were conducted to quantify H4 and acetylated histone 4 (H4ac) in sperm from high and low fertility Holstein bulls. The analysis of flow cytometry experiments clarified that retained levels of H4ac in bull sperm are associated with bull fertility. In addition, gas chromatography-mass spectrometry (GC-MS) was applied to ascertain the amino acid concentration of seminal plasma from bull semen with various freezability. A total of 21 amino acids and isomers were identified, and phenylalanine was positively associated with sperm post-thaw viability ($r = 0.57$, P-value = 0.043). Lastly, a quantitative western blotting experiment was utilized to ascertain relative quantification of sperm nuclear proteins including protamine 1 (PRM1), protamine 2 (PRM2), Histone 3 (H3), and H4. Also, sperm functional parameters including acrosome reaction, DNA fragmentation index, PAWP expression were analyzed using flow cytometry. In addition, immunocytochemistry experiments were applied to analyze sperm chromatin decondensation ability. The analyses of western blotting experiments revealed that the relative abundance of PRM2 in poor freezability sperm (PF) was greater than those in good freezability sperm (GF) ($P = 0.0259$). The relative abundance of retained H3 was greater in PF bulls than in GF bulls ($1.02 \pm 0.005$ and $0.969 \pm 0.021$, respectively; $P = 0.0272$). There was a positive correlation between the abundance of retained H4 and sperm decondensation state ($r = 0.71$, $P = 0.05$). These results are important because they can help advance fundamental andrology and the assisted reproductive technologies both for cattle and other mammals, including humans and endangered species.

Artificial insemination is used instead of natural mating for reproduction purposes and its chief priority is that the desirable characteristics of a bull or other male livestock animal can be passed on more quickly and to more progeny than if that animal is mated with females in a natural fashion. This book contains under one cover 16 chapters of concise, up-to-date information on artificial insemination in buffalos, ewes, pigs, swine, sheep, goats, pigs and dogs. Cryopreservation effect on sperm quality and fertility, new method and diagnostic test in semen analysis, management factors affecting fertility after cervical insemination, factors of non-infectious nature affecting the fertility, fatty acids effects on reproductive performance of ruminants, particularities of bovine artificial insemination, sperm preparation techniques and reproductive endocrinology diseases are described. This book will explain the advantages and disadvantages of using AI, the various methodologies used in different species, and how AI can be used to improve reproductive efficiency in farm animals.

Current Therapy in Equine Reproduction E-Book

Metabolism of Bull Semen

Long-Term Storing of Frozen Semen at −196°C Does Not Affect the Post-Thaw Sperm Quality of Bull Semen

Dialysis, a Method for Studying and Improving the Quality of Frozen Bovine Spermatozoa

Practical information on the reproductive management of both thoroughbred and warmblood breeding operations prepares horse breeders to effectively breed even problem mares and stallions.

Almost a decade has passed since the last textbook on the science of cryobiology, Life in the Frozen State, was published. Recently, there have been some serious tectonic shifts in cryobiology which were perhaps not seen on the surface but will have a profound effect on both the future of cryobiology and the development of new cryopreservation methods. We feel that it is time to revise the previous parad conceptually new cryobiological ideas, and introduce the recently emerged practical protocols for cryopreservation. The present books, "Current Frontiers in Cryobiology" and "Current Frontiers in Cryopreservation" will serve the purpose. This is a global effort by scientists from 27 countries from all continents and we hope it will be interesting to a wide audience.

Bovine ReproductionJohn Wiley & Sons

A Market for Animal Semen?

Factors Influencing the Freezing of Ram Semen

Bovine Reproduction

The Survival of Bovine Spermatozoa Subjected to Different Procedures of Freezing and Thawing

Scientific Principles

Classifies and interprets bovine sperm defects. Includes 155 photomicrographs.

When you ' re looking for a comprehensive and reliable text on large animal reproduction, look no further! the seventh edition of this classic text is geared for the undergraduate student in Agricultural Sciences and Veterinary Medicine. In response to reader feedback, Dr. Hafez has streamlined and edited the entire text to remove all repetitious and nonessential material. That means you'll learn more in fewer pages. Plus the seventh editing is filled with features that help you grasp the concepts of reproduction in farm animals so you'll perform better on exams and in practice: condensed and simplified tables, so they're easier to consult an easy-to-scan glossary at the end of the book an expanded appendix, which includes graphic illustrations of assisted reproduction technology Plus, you'll find valuable NEW COVERAGE on all these topics: Equine Reproduction: expanded information reflecting today's knowledge Llamas (NEW CHAPTER) Micromanipulation of Gametes and In Vitro Fertilization (NEW CHAPTER!) Reach for the text that's revised with the undergraduate in mind: the seventh edition of Hafez's Reproduction in Farm Animals.

Meet Oswald Hendryks Cornelius, Roald Dahl's most disgraceful and extraordinary character . . . Aside from being thoroughly debauched, strikingly attractive and astonishingly wealthy, Uncle Oswald was the greatest bounder, bon vivant and fornicator of all time. In this instalment of his scorchingly frank memoirs he tells of his early career and erotic education at the hands of a number of enthusiastic teachers, of discovering the invigorating properties of the Sudanese Blister Beetle, and of the gorgeous Yasmin Howcomely, his electrifying partner in a most unusual series of thefts . . . 'Raunchy and cheeky entertainment' Sunday Express 'Immense fun' Daily Telegraph Roald Dahl, the brilliant and worldwide acclaimed author of Charlie and the Chocolate Factory, James and the Giant Peach, Matilda, and many more classics for children, also wrote scores of short stories for adults. These delightfully disturbing tales have often been filmed and were most recently the inspiration for the West End play, Roald Dahl's Twisted Tales by Jeremy Dyson. Roald Dahl's stories continue to make readers shiver today.

Current Frontiers in Cryobiology

Physiology of bull semen

A Laboratory Guide

Antibiotics for Bull Semen

Protocols in Semen Biology (Comparing Assays)