

History of artificial insemination in poultry, its components and significance

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Artificial insemination (AI) technology use in poultry production has enabled the rapid dissemination of genetic material from a small number of superior males to a high number of females. Excellent fertility in poultry can be obtained by AI compared to natural mating. Successful application of this technique needs good quality semen that should be inseminated very close to the sperm storage tubules in the female to obtain the optimum fertility in chicken. Since the 1950s, AI has been used in commercial poultry production, initially in Israel and Australia, followed by the USA. Doses of spermatozoa required for AI increases with storage time or that obtained from aged bird. The average volume of semen is between 0.05–0.50 ml in light chicken breeds and 0.1–0.9 ml in heavy males. In light turkeys, volume is 0.08–0.30 ml, whereas in heavy-weight males it is 0.1–0.33 ml. Quality evaluation of semen gives an indication of the male reproductive potential and is the major determinant of fertility and subsequently hatchability of eggs. Semen from cockerels contains between 3–7 billion sperm cells/ml. Among the several factors that influence the semen quality, sperm motility is a primary determinant of fertility in domestic fowls; however, visual examination of semen cannot be ignored for successful AI under field conditions. Dilution of low and viscous volume of avian semen is essential for handling and storage, and chicken semen typically requires a two to three-fold dilution. Collected samples should be preserved at 2–8°C for avian species, ideally with turkey sperm stored at 4–8°C, and chicken semen at 7–8°C for good fertility. Currently, the technique of AI in most of the poultry species is well developed; however, there is a need for successful development programme of this technique in non-domesticated birds to assist in creating viable, self-sustaining populations of critically endangered species.

Keywords: artificial insemination; semen collection; semen storage; semen quality; fertility

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E. S. E. Hafez, B. Hafez



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Proceedings, First International Symposium on the Artificial Insemination of Poultry Murray R. Bakst, Graham J. Wishart, 1995 Poultry Genetics, Breeding, and Biotechnology W. M. Muir, S. E. Aggrey, 2003-06-18 This comprehensive research book represents the first complete integration of current knowledge in this area. It addresses issues associated with poultry breeding particularly by examining quantitative and molecular genetics and the uses of transgenic technology. A special section covers the important area of disease resistance and transmission. Biology of Breeding Poultry Paul M. Hocking, 2009 This book reviews the biological science and background to breeding meat poultry specifically broiler turkey and duck. These commercial birds have been changed by genetic selection to such an extent that they are substantially different from traditional breeds and laying hens. Covering science, management and husbandry systems, this book is an essential reference for researchers and students in animal science as well as technical staff of breeding companies and poultry meat producers. Part of the Poultry Science Symposium Series. **Reproductive Biology and Phylogeny of Birds, Part A** Barrie G M Jamieson, 2011-10-14 Aspects of reproduction covered in this volume include classification and phylogeny as revealed by molecular biology, anatomy of the male reproductive tract and organs, anatomy and evolution of copulatory structures, development and anatomy of the female reproductive tract, endocrinology of reproduction, ovarian dynamics and follicle development. Broiler Breeder Production S. Leeson, J. D. Summers, 2010-04-01 A comprehensive review of all aspects of commercial production systems, this book provides an up-to-date look at all aspects of broiler breeder production and management, starting with specialized genetic programs as developed by the primary breeders and ending with two chapters on very practical hands-on aspects of breeder management, including extensive coverage of health management, feeding systems, environmental control, lighting programs and all aspects of male and female reproduction. Recognizing the diversity of management systems worldwide, the authors have included breeders in both temperate and warm climates and also for controlled environment vs. curtain-sided housing systems. This unique publication is an essential reference for all professionals involved in broiler breeder production. Poultry Behaviour and Welfare Michael C. Appleby, Joy A. Mench, Barry O. Hughes, 2004 This authoritative textbook provides an introduction and guide to poultry behavior and welfare. It describes the origin and biology of the various species of bird that are of agricultural importance as well as giving a succinct overview of their key behavior patterns. There is careful discussion of the many factors that influence their welfare and detailed consideration of the ways in which legislation and commercial interests interact in an attempt to satisfy the many needs involved. The final chapters discuss possible future developments within the subject. The book is in part an update of a previous work Poultry Production Systems: Behaviour, Management and Welfare CABI 1992, completely rewritten and with much new material added. **Reproduction in Farm Animals** E. S. E. Hafez, B. Hafez, 2013-07-03 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 Success in Artificial Insemination Alemayehu Lemma,2013-01-09 Artificial insemination has long been the primary tool towards genetic improvement in many domestic animals Knowledge based decision are increasingly becoming important in this industry Scientific publications are having greater role in the contribution of research outputs towards an efficient utilization reproductive phenomenon This book on improving the success of AI through improving the quality of semen and related diagnostics is just one for interested readers Prisoned Chickens, Poisoned Eggs Karen Davis,2014-01-21 Karen Davis wrote Prisoned Chickens Poisoned Eggs in the mid 1990s to focus attention on the billions of chickens buried alive on factory farms The book was a catalyst for animal rights activists seeking to develop effective strategies to expose and relieve the plight of chickens United Poultry Concerns campaign in the 1990s to reveal the U S egg industry s cruel practice of starving hens to force them to molt their feathers and cut the cost of egg production was decisive in shifting advocacy attention to chickens and the hidden causes of Salmonella and Campylobacter food poisoning This new edition documents what has happened since the book first appeared the waging of high profile campaigns to get rid of battery cages for laying hens undercover investigations exposing the appalling cruelty to chickens and turkeys by poultry industry workers globalization of chicken production and its effect on the environment and spread of avian influenza and how farm animal sanctuaries have become key players in debunking industry myths with truthful accounts of the sensitive and intelligent birds being brutalized in the name of food It also effectively explains why these birds are so ill why eating them makes people sick and what can be done to cure the pathology of the modern poultry industry *Proceedings of the Annual Meeting* Society for Theriogenology,1997

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