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Augmenting reproductive efficiencies in Mithun through biotechnological intervention

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Reproductive inefficiency is a common problem of all livestock including mithun. It is not only a source of frustration to the owners but also substantially reduces its profitability. Now a days various techniques have been developed to obtain large number of offspring from infertile or genetically superior animals. Assisted Reproductive Technologies like estrus synchronization with fixed timed artificial insemination, superovulation, embryo transfer, *in vitro* fertilization, cloning and nutritional management can effectively be used to achieve reproductive efficiency and profitability.

Mithun (*Bos frontalis*), a rare ruminant species of Southeast Asia, is believed to be originated more than 8000 years ago and considered to be descendents from wild gaur (*Bos gaurus*). Mithun is an animal of special significance for the tribal people of North Eastern Hills region of India. It is found in Arunachal Pradesh, Nagaland, Manipur and Mizoram of NE Region of India, Bhutan, Myanmar, Bangladesh and China. Mithun is primarily used as a meat animal and it plays an important role in the socio-economic life of the tribal population of NEH region. Presently the existence of this animal is at stake both from social and environmental point of view. The forest area in which these valuable animals inhabited is decreasing day by day due to some faulty agricultural practices like Jhum with shorter cyclic period. Moreover, under the traditional free-range rearing system, Mithun cows are bred by the bulls available in the herd, resulting genetically inferior herd (inbreeding) and crossbreeding with other bovine species causing decline in quality germplasm. Apart from these, the problem of late maturity, silent estrus and long postpartum estrus are also causing hindrances for making the mithun husbandry as a sustainable livestock enterprise. In this context, there is need to understand the basics of mithun reproduction and to develop technologies for augmenting the reproductive efficiency of this species.

Mithun has got a great potential for quality meat, milk and leather production. The quality of meat, milk as well as leather of this animal is very good and there is a great scope to promote this animal as an organic meat and milk producer. There is immense scope to increase meat production to meet the demand of the fast growing population by exploiting the rate of reproductive potential of mithun through judicious application of assisted reproductive technologies. To ameliorate the problems in mithun, we have developed scientific interventions like synchronization of estrus, preservation of Mithun semen followed by AI, standardization of superovulation protocol, cryopreservation of embryos and transfer of embryos in Mithun for conservation and propagation of quality Mithun germplasm as well as for improving the productivity of the traditional Mithun rearing system.

Biography

K K Baruah has completed his PhD from Bulgarian Academy of Science in 1992 and Post Doctoral from University of Wisconsin, USA in 2010. He is serving as Principal Scientist at National Research Centre on Mithun, Nagaland since 2006. Prior to that he had served as Professor in the Physiology Department of College of Veterinary Science, Assam Agricultural University, Khanapara. He has published more than 100 papers in the reputed national and international journals. He has also received nos of awards from different organizations.

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