

## Status and Breeding Strategies of Mithun: The Pride of the Hilly Region

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### Abstract

Mithun is one of the most important historical animals among the tribal society of North East Region. It plays an important role in the socio-economic life of the tribal people. According to the 19<sup>th</sup> Livestock census, mithun accounts for 0.296 million out of the total bovine population. The strategies for breeding should be centred on conservation of this precious and unique animal. A practical approach towards improvement programme of this species is the introduction of superior male into the herds. The State Govt has to take initiatives in this regard along with the village community leaders and the NGO's. National Research Centre of Mithun (ICAR) having the requisite scientific experience could show the path and can be a role model to start with the venture of sustainable Mithun farming.

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### 1. Introduction

Mithun, the pride animal called as 'Cattle of Hilly Region' of north-eastern hilly region of India (Arunachal Pradesh, Nagaland, Manipur and Mizoram) plays an important role in the day to day socio-economic life of the local tribal population. Mithun is often referred to as the "ship of highland" and is a good example of integration of agro-ecology, subsistence livelihood, culture and livestock rearing. These animals are of special importance in the hills, at an altitude above 2000 MSL. They are also considered as almost sacred in view of their ability to survive those harsh conditions and useful for multiple needs.

### 2. Economic Importance of Mithun Rearing

The tribal community those who possess the Mithun are considered to be the sign of prosperity in that society. Besides, this animal is also used as marriage gift and sacrificed animal for different cultural ceremonies. This animals though domesticated are still reared in the wild under traditional practices with almost no human input except occasional salt lick. At the same time, changing social practices among the tribal population who are the custodians of this unique bovines, are responsible for somewhat decreasing importance of Mithun among the younger generation of the society over the years.

### 3. Status of Mithun in North East Region

The 2012 Livestock Census have revealed that we have livestock population of about 512.05 million, out of which 299.9 million are bovines and the rest are mainly sheep, goats, pigs and other animals. Out of this 299.9 millions of bovines, Mithun accounts for 0.296 million confined mostly in four North East States. The population of Mithun has been increased by 0.032 million compared to the previous Livestock census.

### 4. Breeding Practices in Mithun

Mithun bred throughout the year and no definite breeding season is observed. Mithun is polyestrous animal. The adult female shows repeated estrus cycle after every 19-24 days interval with silent estrous without bellowing and having standing heat period ranging from 4-16 hours. The length of the gestation period is 290-320 days. The service period is 50-100 days. The age at puberty and age at first calving varies from 18-24 months and 35-40 months, respectively. The inter-calving period in Mithun is 400 days. The expression of estrus behavior is silent in Mithun unlike cattle it is difficult to detect heat in female Mithun by clinical symptoms. The inbreeding is a common practice in hilly areas and efforts should be made to replace the breeding Bull preferably once in a 3-5 years. The ovulation takes place in Mithun between 28-32 hours after the onset of estrus. It is common practice

of tribal people to bring back the pregnant Mithun just before parturition and send it back to jungle after parturition.



Mizoram strain Mithun Licking salt

## 5. Aim of Mithun Breeding Programmes

- The primary aim of the breeding programme should be to increase the meat and milk production and the per capita availability of milk/meat through the increase in number and improving the quality of Mithun.
- To bring all the breedable age female under breeding programme by making available breeding facilities like bulls for natural service and introduction of artificial insemination in Mithun.
- To increase the breedable females under coverage of quality bull service/artificial Insemination.

## 6. Strategy for Mithun Breeding and Production System

In their own habitat in North East hills of India, Mithun herds move around in jungles throughout the year and breed naturally by the herd bulls. The owners have no role to play what so ever in breeding of the Mithuns, which mate randomly without any human intervention. The strategies for breeding of Mithun should be centred on conservation of this precious and unique animal. Mithuns are primarily reared for meat. Nevertheless, evidences are there that Mithun and Mithun  $\times$  cattle hybrids are also used for milk and draught purposes. Breeding of this species artificially will be a real challenge as these animals are exclusively maintained under free-grazing condition in forests. Therefore, a practical approach towards improvement programme of this species is the introduction of superior male into those herds. For the purpose, superior males and females may be maintained in station condition under good management. Intensive selection for better growth performance and other related parameters should be the prime objectives of

the breeding farms. The superior males produced in the breeding farms can be introduced into the field herds at the ratio of 10:1 (female: male) for natural mating. However, artificial insemination and testing of bulls through multiple ovulation and embryo transfer can be implemented in the nucleus herds depending on the available facilities for efficient production of superior animals.

Mithun is a unique and valuable bovine species of the NE Hill Region of India. This species could be an essential component of the sustainable animal production system of the region. Therefore, it is suggested to avoid any kind of interspecies hybridization between Mithun and cattle for any purpose. The primary aim of any future breeding should be the conservation and preservation of this unique species. Any indiscriminate cross breeding or species hybridization may lead to a great loss of its innate genetic potentiality and valuable genes. Although A.I. in Mithun is being standardized in National Research Centre on Mithun, Nagaland, it is yet to be applied at field level and hence natural service is going to stay in the near future for Mithun breeding. In order to avoid inbreeding in the isolates or small herds in a particular locality, exchange of Mithun bulls or introduction of new bulls in the herds are advocated. In fact Mithun breeding can be carried out using bulls on community basis (Das, 2008).

## 6.1 Steps to be taken for Scientific Mithun Production

1. Establishment of Mithun breeding farms in the native tract of Mithun.
2. Selection and introduction of quality bulls with high genetic merit in the Institute level.
3. Introduction of AI facility in Mithun and establishment of semen stations.
4. Training on estrus detection, synchronization and fixed time insemination to the field veterinarians and artificial insemination workers.
5. Regular supply of frozen semen and liquid nitrogen free or at reasonable cost to the Mithun owners.
6. Introducing good quality community bull in Mithun rearing pockets.
7. Conservation of different strains of Mithun.
8. Establishment of milk recording and analyzing laboratory, where daily morning Mithun milk can be recorded and evaluated.
9. Establishment of elite nuclear herd(s) for different strains of Mithun for their conservation and genetic improvement.

## 7. Strategies for Integrating Mithun with livestock Production

Some of the steps which should be taken for a successful integration of Mithun with livestock system of the North East Hill region may be -

- Participatory mode of Mithun farming: Involvement of Mithun owners and village community in the decision making process and creating awareness about the benefit of modern Mithun rearing and farming.
- Establishment of Mithun farms with availability of feeds, programmes of selection, having breeding, reproductive technologies and other input services at the farmers door. Embryo Transfer (ET) and Open Nucleus Breeding System (ONBS) shall be an integrated part of breed improvement.
- Government support to establish Mithun farms to organize these activities and to provide fiscal and policy support to help development of small scale Mithun sector under the ambit of cooperative/private organised sector and quality assurance programmes.
- Feed and fodder: Efforts would be made to enhance availability of fodder and feed.
- Integration of livestock and fodder system: Non-conventional animal feed resources have to be exploited to make available protein and energy for livestock feeding.
- Animal health: Prevention and control of infectious diseases being a community welfare activity shall continue to remain totally the State's responsibility.
- Incentives to Mithun rearers: for rearing healthy Mithun calves, free health check up, supply of mineral mix, salt licks.
- The insurance coverage for such exigencies should be encouraged particularly for owners below the poverty line.
- Information system on Mithun: Database on Mithun has to be strengthened. There are large

data gaps. Steps need to be taken to generate and disseminate the required information for proper planning and programme implementation.

- Different awareness camp, farmers training, workshop, etc for the Mithun owners, unemployed youths and women farmers time to time.
- Creation of marketing network for value added Mithun meat, milk and their by-products for commercial success.

## 8. Conclusion

The North East Hills are the natural habitat of Mithun. This animal occupies an historical importance among the tribal society of North East Region. Possession of large number of Mithun has been regarded as a social status and superiority of the person in the village. However, commercial exploitation of this animal has not been started either a number of Scientific knowledge of livestock production have to be imparted to the Mithun owners and their keepers. The State Govt has to take initiatives in this regard along with the village community leaders and the NGO's working in the villages could play a crucial role. National Research Centre of Mithun (ICAR) having the requisite scientific experience could show the path and can be a role model to start with the venture of sustainable Mithun farming. Mithun rearing is already a viable practice of the North East Hills and it can be judged from the fact that this animal is intrinsically related with the tribal society from time immemorial and still in sufficient number which can be further exploited. A sustainable and financially viable Mithun farming, which will generate wealth and self-employment through entrepreneurship, is the need of the day. This would require creating an environment in which Mithun owners will increase investment to improve productivity and building participatory institutions. This will allow the farmers to get vertically integrated with processors of livestock products and input suppliers/service providers.

## References

- Das KC, Haque N, Baruah KK, Rajkhowa C and Mondal M (2011). Comparative nutrient utilization, growth and rumen enzyme profile of Mithun and Tho-Tho cattle fed on tree leaves based ration. *Tropical Health and Production*, 43: 209-214.
- 18<sup>th</sup> and 19<sup>th</sup> livestock census (2012). All India report: Ministry of agriculture department of animal husbandry, dairying and fisheries, Krishi Bhawan, New Delhi.
- Das KC, Prakash B, Dutta P and Rajkhowa C (2010). Performance of male and female Mithun (*Bos frontalis*) reared in captivity and fed mixed tree leaves and straw based ration. *Animal Nutrition and Feed Technology*, 10: 75-80.
- Shisode MG, Khanvilkar AV, Kulkarni MD, Samant SR, Yadav GB and Bawaskar MS. (2009). Mithun : The Pride animal of North-eastern hilly region of India. *Veterinary World*, 2(12):480-481