



Chungrung:- A Mithun Cross Cattle an Interspecies Hybridize Animal Boon for Mishmi Tribes of Arunachal Pradesh

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ABSTRACT

Species hybridization between Mithun and cattle is a form of out-breeding, to produce new offspring called locally **Chungrung** by Digaru Mishmi, is a natural paradigmatic shift towards positive development of new breeds (Chungrung), thereby improving the low face value animal (cattle) to high face value animal (Chungrung), without much human manipulation against the desire of Animal. However, there is a dilution in pure germplasm of both the species. Nevertheless, Species hybridization is a boon for Mishmi society, because as per traditionally and customary law and practices, Chungrung worth and value are used at par with Mithun in Mishmi society, like two different facet of same coin, thereby improving the socio-economic status of person. Where Mithun price is sky, rocking costing around Rs 60,000 – 80,000 per adult Mithun, in counterpart adult cattle cost around 15,000 – 20,000 only. Consequently Mithun and Chungrung is consider as most blessed animal for livelihood sustenance in many different dimension be it in social, culture or religious aspect of Mishmi society in Arunachal Pradesh.

1. Introduction

Interspecies hybridization is the most extreme form of out breeding where two different species mate each other to produce new offspring with 50-50 blood percentage; genetic makeup and their phenotypic appearance resemble both the parents to some extent. There are few records of species hybridize animal such as Cattalo (cattle cross buffalo). Hinny, (horse cross donkey). Zebroid, (zebra cross horse). Dzomos, (Yak cross cattle). Jatsa and Jatsamine (Mithun cross Siri cattle), Hickman and Tenzing (1982b). Generally in

It is the character of Mithun to stay deeper inside the jungle for feeding and breeding purpose. Whereas, cattle graze near the periphery of forest without entry much deeper inside the forests. There are many animal in Anjaw district, which have similar phenotypic character of both Mithun and Cattle but no study have been done or documented in this aspect. Considering the above fact a field survey was done to reveal the facts.

2. Material and Methods

Arunachal Pradesh Mithun (*Bos frontalis*) and nondescript local cattle (*Bos indicus*) are reared under zero input system, except for feeding salt during spotting or tracking the Animal. They are let loose freely to roam and search for favorable environment for feeding, shelter and breeding ground etc.

The present study was carried out at Hamaliang, Chirang, Chameliang, Supliang and Tafraliang covering five village of Hayuliang-Goilang CD Block in year 2015 to 2016. Randomly five persons were selected from each village including farmers, Gaon bura and rural youths as representative sample of each village. A uniform questioner were prepared to explore the facts about interspecies hybrid animal between Mithun and cattle in different aspect viz

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breeding, phenotypic appearance difference, social importance and overall perspective about interspecies hybridizations, along with focus group discussion and field survey.

3. Result and Discussion

3.1 Breeding method

The respondent informed that, under natural environments cross breeding takes place. but sometime they purposely bring their cattle near to Mithun for crossing during heat period or only female cattle are kept without any male cattle, so that male mithun will cross with cattle during favorable time and black coat colour female cattle breed more easily with mithun compare to other coat colour of cattle. Therefore, they prefer to keep black coat colour female cattle for interspecies hybrid purpose. The new interspecies hybrid offspring are locally called as Chungrung and as per the respondent within 3rd generation of successive mating (Back crossing), with crossed female offspring by pure male Mithun or cattle result into full phenotype appearance of Mithun or cattle without knowing any blood percentage. It has been observed that, majority of Anjaw district are cover by steep physio-topography due to which, Mithun remain in a close proximity with, human dwelling area and come to road side for shelter during night, because of unfavorable place for resting, unlike other mithun inhabitant district of Arunachal Pradesh. As a result there is sharing of grazing ground with cattle and often intermingle between two species occur and out crossing (species

European cattle, female are generally fertile and male are sterile reported by Kuhn in 1885 as quoted by Simoons and Simoons (1968) and Winter *et al.* (1984). However, as per farmer response both the male and female Chungrung are fertile, which is contrary to above finding, because the cattle used for cross breeding by Kuhn 1885 was of European breed (*Bos Taurus*). There is no available literature on Indian cattle (*Bos Indicus*) cross with mithun. Therefore, there is need of in-depth study in sperm quality of male Chungrung to reveal the facts.

3.2 Physical character

Female Mithun cross with male cattle resemble more like Mithun in phenotypic appearance (Fig.1). Whereas Male Mithun crossed with female cattle resemble more like cattle (Fig. 2). However there is 50-50 blood % and genetic makeup from both the parent in crossed breed offspring, though phenotypically they look slight different. Pure breed mithun have white stocking leg irrespective of body coat colour, with tail not extending beyond hock joint. However, in Chaungrung legs are of different coat colour viz. white, black or admix of white and black and tail may or may not extending beyond the hock joint, while in cattle tail length extend beyond hock joint. The horns of chungrung are very glossy, sharp pointed and thin compare to Mithun (Fig. 3). The physical characteristic difference between Mithun, Cattle and Chungrung are shown in Fig. 4 and Table No.1.

3.3 Social Importance

hybridization) take place during favorable breeding time in heat period of Mithun and cattle. The karyotype of mithun consists of 58 chromosomes in comparison to 60 in domestic cattle (Gupta <i>et al.</i> , 1995). In have been reported that cross breed between mithun and	Mithun are consider as most blessed animal in Mishmi society and they are used for bridal price during marriage ceremony, as a sacred animal for scarification in rituals performance, due to which value of mithun is sky rocking. Similarly role of mithun in socio-economic and cultural life
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Table No 1: Physical characteristic difference between Mithun, Cattle and Chungrung

Sl. No	Particular	Mithun	Cattle	Chungrung
01	Horn feature	Broad base with tapering end	Parallel base with tapering end	Admix
02	Frontal skull	Long	Short	Medium
03	Shank colour (leg)	White stocking	No white stocking	May or may not white stocking
04	Tail length	Not extending beyond hock joint	Extend beyond hock joint	May or may not extend beyond hock joint
05	Spineous process	Very prominent	Not prominent	Medium
06	Horn ring	Very prominent	Not prominent	Less prominent
07	Horn colour	Yellow, black, admix	Black	Yellow, black, admix
08	Horn texture	Smooth	Rough	Very shiny and smooth with sharp pointed tips
09	Body structure	Huge	Small	Medium
10	Bones size	Thick	Thin	Medium

of the tribal people are mention by (Simoons 1984, Mondal and Pal 1999, Tayo *et al.*, 2014). The new interspecies hybrid offspring locally called as Chungrung are used as same face value of Mithun in Mishimi society like two different facet of same coin. Therefore, they never distinguish the worthiness of mithun and chungrung, under traditionally and customary practices.

3.4 Overall perspectives about cross breed offspring



Source: KVK Anjaw, field survey 2015-16
Figure 2. Female mithun cross with Male cattle
 (Offspring resemble more with Cattle)



As per the respondent, outbreak of FMD is very common in Mithun and cattle population and Thaliza infestation is also very common in Mithun but rarely occur in cattle population in Anjaw. However, crossed breed offspring (Chungrung) are resistance to FMD and eye worm infestation by Thaliza, compare to Mithun and cattle. They are very hardy, every year one calf is calved, and calf mortality percentage is very low with shorter inter calving period compare to Mithun. Chungrung also possess very good mother instinct and protective in nature this aid in raising calf without much owner care. So, most of respondents view is that they prepare to rear Chungrung because of hardy in nature, disease resistance and one calf every year and face value is same with Mithun. However, they would like to maintain pure germplasm of Mithun for their descendant as maintained since ancestor for generation to generations.



Source: KVK Anjaw, field survey 2015-16
Figure 1. Female cattle cross with Male Mithun

Conclusion

Intentionally by forceful outcrossing of different animal may be against the ethics of Hardy Weingber law and Drawin theory of natural selection but in Anjaw District, according to the Physic-topography of district the out breeding is done as per the theory of natural selection between two different species though they come under same Bovidae family. No doubt, there is a dilution of germplasm in pure breed Mithun and cattle populations. However, it is a boon for Mishimi society by upgrading low face value (Cattle) to high face value animal (Chungrung), comparable to status of Mithun. The interspecies hybrid offspring between mithun and cattle are known by different name in different district of Arunachal. As Jatsa and Jatsam by West Kaming of Monpa tribes, Tamin by people of Mechuka and Tutin, Sesabee by people of Sagale and Chungrung by Mishmi tribes. Therefore, interspecies hybrid offspring must be given a common name as Mithle (Mithun of Mith and Cattle of le to reconstitute a new common name Mithle), for easy reference, as common name for cattle cross buffalo is called Cattalo.

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Source: KVK Anjaw, field survey 2015-16

Figure 3. Comparative phenotypic physical character between Chungrung and Mithun



Figure a. Mithun



Figure b. Cattle

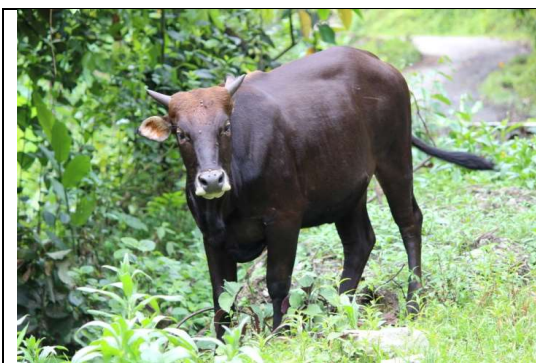


Figure c. Chungrung



Figure d.. Jatsa (Male) & Jatsam (Female)

Source: KVK Anjaw, field survey 2015-16

Figure 4. Physical character difference between four breeds

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