

# SEMI-INTENSIVE MITHUN FARMING

## SUCCESS STORIES UNDER TRIBAL SUB PLAN (2016-2021)

Meraj Haider Khan | Kamni Paia Biam | Kobu Khate  
Sapunii Stephen Hanah | Kezhavituo Vupru  
Jayanta Kumar Chamuah | Hlando Lalzampaia  
Vikram R | Laisharam Sunitibala Devi  
Abhijit Mitra



**ICAR-NATIONAL RESEARCH CENTRE ON MITHUN**

MEDZIPHEMA, NAGALAND - 797 106

Website: [www.nrcmithun.icar.gov.in](http://www.nrcmithun.icar.gov.in)

 Nrc On Mithun  NRCMITHUN  Nrc Mithun





# Semi-Intensive Mithun Farming: Success Stories Under Tribal Sub Plan (2016-2021)

**Meraj Haider Khan**

*Principal Scientist (Animal Reproduction) & Director (Acting),  
ICAR-NRC on Mithun*

**Kamni Paia Biam**

*Scientist (Agricultural Extension)*

**Kobu Khate**

*Chief Technical Officer*

**Sapunii Stephen Hanah**

*Scientist (Livestock Production & Management)*

**Kezhavituo Vupru**

*Chief Technical Officer*

**Jayanta Kumar Chamuah**

*Scientist (Veterinary Parasitology)*

**Hlando Lalzampuia**

*Scientist (Veterinary Microbiology)*

**Vikram R**

*Scientist (Animal Reproduction)*

**Laisharam Sunitibala Devi**

*Scientist (Livestock Production Management)*

**Abhijit Mitra**

*Director, ICAR-CIRC Merrut, UP*



**ICAR-NATIONAL RESEARCH CENTRE ON MITHUN**

Medziphema, Dimapur, Nagaland- 797106

**Website:** [www.nrcmithun.icar.gov.in](http://www.nrcmithun.icar.gov.in)

Nrc On Mithun NRCMITHUN Nrc Mithun



## **Semi-intensive mithun farming: Success Stories Under Tribal Sub Plan (2016-2021)**

*July 2022*

All Rights Reserved

2022, ICAR-National Research Centre on Mithun, Nagaland

### ***Publisher***

#### **Director**

ICAR-National Research Centre on Mithun  
Medziphema, Dimapur, Nagaland 797106

### ***Authors***

M. H. Khan  
Kamni P. Biam  
KobuKhate  
Sapunii S. Hanah  
KezhavituoVupru  
Jayanta K Chamuah  
H Lalzampuia  
Vikram R  
Laisharam S. Devi

### ***Recommended Citation:***

**Khan, M. H., Biam, K. P., Khate, K., Hanah, S. S., Vupru, K., Chamuah, J. K., Lalzampuia, H., R, Vikram., Devi, L. S, Abhijit Mitra.** 2022. Semi-intensive mithun farming: Success Stories Under Tribal Sub Plan (2016-2021) Success Stories, ICAR-National Research Centre on Mithun, Nagaland.<https://nrcmithun.icar.gov.in>.

---

### ***Design and Printed by:***

M/s. Royal Offset Printers, A-89/1, Naraina Industrial Area, Phase-I, New Delhi-110 028

## PREFACE

Mithun the unique bovine species is traditionally being reared under a free-range forest ecosystem in which the animals are let loose in the community forest without providing shelter and any supplementary feeding except occasional salt. About 40-60 percent mortality has been reported every year in Mithun due to diseases and particularly to newborn calves due to attacks from wild carnivores. During winters, due to the scarcity of trees leaves, and grasses in the forest, trespassing of Mithun into agricultural land is reported which is the main cause of conflict between Mithun owners and agriculture farmers. Some of the villagers have even stopped rearing Mithun due to this conflict. Moreover, decreasing forest coverage is also a concern for the conservation and propagation of Mithun in the region. Therefore, it was imperative to find out an alternative rearing system. ICAR-NRC on Mithun has developed an alternative package of practices of Mithun rearing under a semi-intensive rearing system and the same has already been practiced successfully in the Institute Mithun Farm for the last two decades.

Under the Tribal Sub Plan of the Institute, a significant breakthrough in trying to educate the farmers in the adoption of a more scientific Mithun rearing practice under field conditions was achieved in the past five years which are presented in these success stories. This has brought about an improvement in the livelihood of the tribal communities through input mobilization and further development of capital assets in the form of an increasing population of the Mithun herd. It is worth mentioning that some of the Mithun societies/villages have not only adopted the recommended technology but also have been able to sustain it for improvement of their livelihood.

We strongly believe that this documentation in the form of success stories will encourage and motivate the Mithun societies/villages to adopt the semi-intensive system of Mithun rearing to support our efforts in its conservation and livelihood improvement through the diversified use of Mithun as milk, hide and draught animal. The authors would like to express their sincere support to all the contributors who directly or indirectly have helped document these success stories. The financial support received from the Indian Council of Agricultural Research under the Tribal Sub Plan is gratefully acknowledged.

Authors

Dated: 01-07-2022



# CONTENTS

1	Introduction	1
2	Glimpses of the semi-intensive Mithun rearing units established	13
3	Augmenting farmers' income through semi-intensive Mithun farming in Tening village, Peren district, Nagaland	15
4	Conservation and propagation of mithun through semi-intensive mithun farming in yakhullen village, senapati district, manipur	18
5	Semi-intensive Mithun farming: a boon for Mithun farmers' income in Haipi village, Kangpokpi District, Manipur	20
6	Diseases prevention and control through semi-intensive Mithun farming in Machi village, Tengnoupal district, Manipur	22
7	Improvement of traditional mithun farming under tribal sub plan (TSP)	24
8	Mithun-mitra mobile app	26
9	Tribal sub plan– at a glance	28





# INTRODUCTION

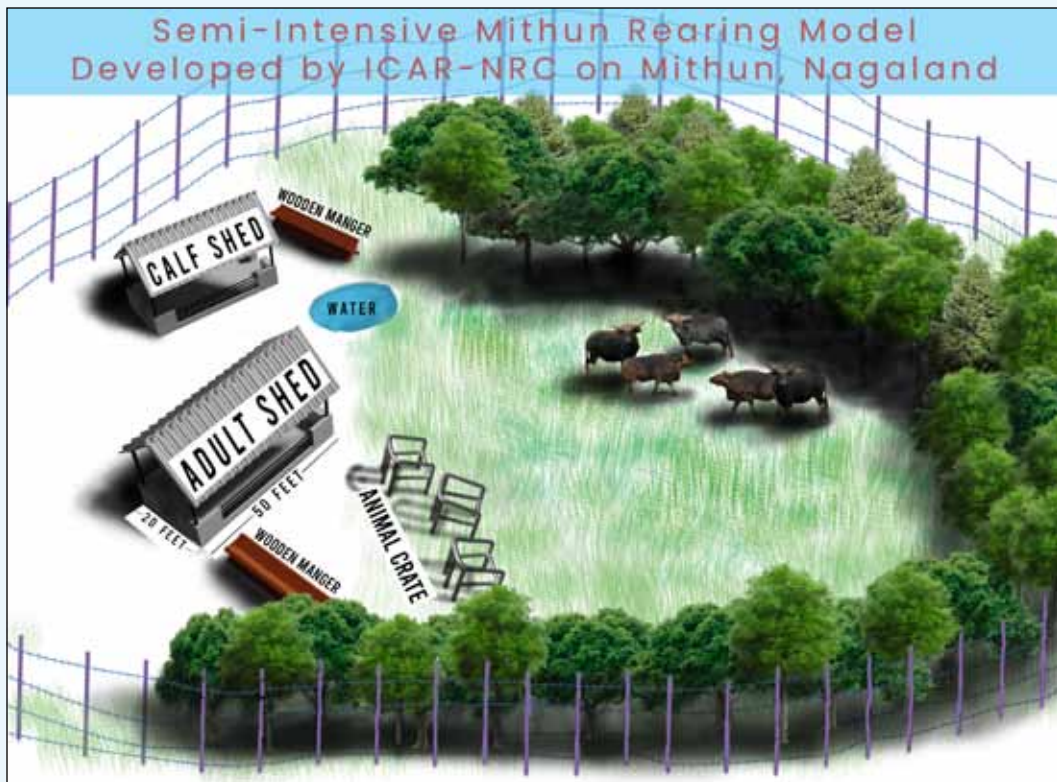
Mithun is traditionally being reared under a free-range system in which the animals are let loose in the community forest without any provision of shelter and supplementary feeding except occasional provision of salt. Since the animals are exposed to harsh weather conditions and wild animals; a lot of mortality has been reported in mithun due to diseases and predators attack especially to the newborn calves. Many of the mithun rearing villages has left the mithun farming/rearing due to the following constraints.

1. Difficulty in implementation of scientific interventions like vaccinations, health care, and supplementation for further improvements.
2. Lack of a proper identification system for mithun under the existing free-range system leads to ownership conflicts between the mithun farmers.
3. Lack of feed supplementation and non-availability of sufficient feed/ fodder viz., tree leaves and grasses, particularly during the lean season, may adversely affect the growth and reproductive performance.
4. Indiscriminate breeding under a free-range system may result in inbreeding, fertility problems, and a long inter-calving period.
5. High calf mortality due to attack by wild carnivores.
6. High cost of fencing materials.

## **Initiatives of ICAR-NRC on Mithun**

ICAR-NRC on Mithun has developed an alternative package of practices of mithun rearing under a semi-intensive rearing system. Under this alternative, 'semi-intensive' system, mithuns are provided with a night shelter. The animals are let loose for grazing during the day. In the evening, animals are brought back to the shelter and fed with supplements like fodder grass, paddy straw with little concentrate. Each animal is ear-tagged or micro-chipped for proper identification. The supervision of animals, additional feeding, watering, and medication is done during the late afternoon or early morning. The biggest advantage of this system is that the animals are monitored by the owner regularly for growth, reproduction and health care, and breeding. Regular vaccination against common infectious diseases, prophylactic deworming, and other health care practices are being followed.

## Components of semi-intensive mithun rearing model



### A. Fencing of mithun rearing area

To prevent mithun from trespassing into the agricultural fields, barbed wire is provided under TSP. One bundle of barbed wire covers a length of 200 meters. 40 - 60 bundles of barbed wire are provided in each village depending upon the mithun population of that village to enclose an area of about 2-3 km, wooden posts and labour are provided by the villagers.

### B. Provision of night shelter/low-cost housing model

Under a semi-intensive system, the selected villages or selected mithun societies are provided with a CGI sheet for making night shelter which is generally made outside the village at the periphery of the forest so that mithun can easily be looked after by the owner. The size of the adult mithun shelter is 50 x 20 ft and the calf shelter is 15 x 20 ft. The floor of the shelter is made of mud and sand. CGI sheets are also provided to make a small shelter for the herdsman. Wooden posts required for making night

shelter and herdsman shed were provided by the villagers. All mithun owners make the shelter themselves.

### **C. Travis/ Animal crate**

Fabricated Travis is installed near the animal shed for the restraining of mithun for treatment, vaccination, deworming and ear tagging, etc. One or two Travis are installed in each unit.

### **D. Wooden manger or platform**

Provision of the concrete or wooden manger is also made near the shed so that additional supplements like feed blocks, salt and mineral mixture, etc. may be provided from time to time.

### **E. Water harvesting structure/Pond**

The rainwater is harvested by installing PVC pipes at the edges of the shed and stored in the pond which improves the Mithun's access to water immensely. Provision is also kept for a small pond or reservoir construction within the mithun rearing area near the shed.

### **F. Vermicompost unit**

Vermicompost unit is established and prepared using decomposed materials like mithun dung, vegetables and fruit wastes and crop residues, etc. It will increase revenue and promote organic manure among farmers.

### **G. Distribution of raincoats, gumboots, bags and caps, etc.**

In addition to barbed wires, Travis, CGI sheets, gumboots, bags, caps and raincoats are distributed to the mithun rearing farmers for easy monitoring and supervision of the mithuns in harsh climatic conditions.

## **Interventions done by the Institute under a Semi-intensive model**

### **A. Supplementation of low-cost complete feed block**

Crop by-products such as straws (paddy, wheat, millet, etc) and stovers (maize, sorghum, etc), dried forages in the form of tree leaves and grasses might be



Feed block preparing machine and feed blocks prepared

incorporated into feed blocks. These feed ingredients are deficient in nutrients. Preparation of compressed complete feed block reduces wastage of feeds in the form of residues. It also opens an avenue for improvement of the ration by incorporating deficient nutrients and increases in production.

### **B. Supplementation of mineral mixture/ salt**

Mithun generally takes their food from the leaves of the trees, shrubs, and grasses; it is deficient in important trace minerals and also shows in their body. An area-specific mineral mixture has been formulated and prepared to balance the mineral requirement for better productive and reproductive performance and thereby enhancing the income of the mithun farmers.



Mineral mixture



Mineral Block

### C. Mineral Dispenser

This device has several features combined into one single unit for supplementation of mineral to mithun. The prepared blocks are kept inside the dispenser for slow and controlled release of minerals by licking



Licking of a mineral block by mithun and mineral dispenser

### D. Ear tagging/ Micro-chipping

Cutting off the edges of the animal ear is an age-old practice of identification in many livestock species including mithun which has several disadvantages. The ear tags are made up of polyurethane with permanent numbers printed. These numbers are large enough to read from the distance for easy identification. Sometimes, ear tags also get lost in the forest after getting entangled in the bushes. It can easily be replaced by the owner himself with the help of an ear applicator.

Microchipping is also an advanced way of identification of animals. In this system, a small microchip is inserted inside the neck subcutaneous area of mithun with the help of a needle. This microchip is encoded with a number that can be read by a microchip reader. This method is very safe and permanent and there are no chances of losing the chip.



## E. Calf feeding management

### 1. Colostrum Feeding

The calf must receive the first milk which the cow gives after calving and is called colostrum. Be sure to feed the calf enough colostrum between 2 to 2.5 liters daily or whatever the quantity available from the mithun dam, for the first 3 days following its birth. Any excess colostrum may be fed to other calves in the herd in amounts equal to the amount of whole milk normally fed. None of it should be wasted. The digestibility of colostrum increases when it is given at a temperature between 99 °F and 102 °F.

### 2. Feeding whole milk

In feeding whole milk, calves may be fed as per the feeding schedule. While feeding whole milk the following points should be remembered.

- As far as possible provide milk from the calf's mother.
- Feed milk immediately after it is drawn.
- The total amount of milk may be fed at 3 or 4 equal intervals up to the age of 7 days and then twice daily.

### 3. Feeding calf starters

Calf starter is a mixture consisting of ground farm grains, protein feeds, minerals and vitamins. After a calf attains the age of 2 weeks the amount of whole milk given to it may be cut down. One should then rub a small amount of starter on the calf's mouth, after each milk feeding for a few days when the calf will be accustomed to it. When they reach four months of age, one should then transfer the calves to a "growing" grain ration.

### 4. Feeding grain mixture

Better growth and greater resistance to calf ailments result from the consumption of grain and milk by the calf than when the calf is fed only on milk. At the age of 7-15 days, the feeding of grain mixtures may be started. To get calves accustomed to grain mixtures, place a small handful of grain mixture in the pail. As the calf is finishing its milk it may consume a portion, or one may offer a little in the hand immediately after feeding milk. Excessive protein-rich grain mixture is not desirable as milk is already rich in proteins. A medium protein grain mixture is most suitable when milk is fed freely.



## 5. Milk replacer

It contains a minimum of 20 % crude protein. The milk replacer is diluted with water in a ratio of 1:10.

## F. Feeding of adult animals

- The concentrate must be fed individually according to production requirements.
- Good quality roughage saves concentrates. Approximately 20 kg of grasses (guinea, Napier, etc.) or 6-8 kg of legume fodder (cowpea, lucerne) can replace 1 kg of concentrate mixture (0.14-0.16 kg of DCP) in terms of protein content.
- 1kg straw can replace 4-5 kg of grass on a dry matter basis. In this case, the deficiency of protein and other nutrients should be compensated by a suitable concentrate mixture.
- Regularity in feeding should be allowed.
- Over-feeding of concentrates may result in off-feed and indigestion.
- Abrupt changes in the feed should be avoided.
- Grains should be grounded to a medium degree of fineness before being fed to cattle.
- Long and thick-stemmed fodders such as Napier may be chopped and fed.
- Highly moist and tender grasses may be wilted or mixed with a straw before feeding. Legume fodders may be mixed with straw or other grasses to prevent the occurrence of bloat and indigestion.
- Silage and other feeds, which may impart flavor to milk, may be fed after milking. The concentrated mixture in the form of mash may be moistened with water and fed immediately. Pellets can be fed as such.
- All feeds must be stored properly in well-ventilated and dry places. The moldy or otherwise damaged feed should not be fed.

## G. Breeding management

Mithun is traditionally reared under a free-range forest ecosystem in which males and females are kept together and there is no control breeding of females. There is indiscriminate mating. Hence, genetic improvement of mithun is impeded in the present free-range rearing system. The recording of traits and pedigree information is almost non-existent. The size of a typical mithun herd ranges from 50 to 200.

Herds are generally served by a few dominant bulls. The mithun population may therefore suffer from inbreeding. Further, as per the tribal custom, the best (phenotypically) adult males are being slaughtered during any auspicious occasions like marriage and other ceremonious functions leading to a decline in the superior mithun male population which may result in poor genetic stock. Therefore, the following interventions have been made under a semi-intensive system for genetic improvement of the mithun population as well as to prevent inbreeding.

### 1. Bull exchange programme

Genetically superior males are produced at ICAR-NRC on Mithun Farm through selective breeding using artificial insemination. Farm-born superior males are distributed to the villages where semi-intensive units are established or bulls will be exchanged.

### 2. Estrus synchronization and timed artificial insemination (AI)

Standardized estrus synchronization protocol (modified co-synch protocol) with fixed-time AI (FTAI). The advantage of FTAI is that it saves the cumbersome process of heat detection. Further, standardized the semen collection and freezing protocol of mithun semen which is utilized for AI at the institute mithun farm as well as under field conditions.

## H. Health care management

The important diseases recorded in Mithun are Foot and Mouth Disease (FMD), Infectious Bovine Rhinotracheitis (IBRT), Bluetongue (BTV), Malignant Catarrhal Fever (MCF), Bovine Adeno Virus Disease (BAV), Rota Viral Diarrhoea, Tuberculosis (TB), JD, Haemorrhagic Septicaemia (HS), Black Quarter (BQ), Brucellosis and Bronchopneumonia. Parasitic gastroenteritis is the major cause of parasitism in mithuns and is one of the major causes of morbidity and mortality among Mithun calves.





Mithun health calendar is developed by the institute for vaccination and deworming as per the schedule. FMD has emerged as the single most economically devastating disease among mithuns in the northeastern states. It is commonly observed that mithun is comparatively more susceptible to FMD than other livestock species.

## Vaccination against FMD, HS and BQ

The vaccination against the FMD, HS and BQ for mithuns reared under the semi-intensive model is carried out regularly. The first dose of FMD is administered at 4 months of age, followed by a second dose at 2-4 weeks after the first vaccination, then repeated once in 6 months intervals preferably before monsoon season (during April-May) at a dose of 3 ml by subcutaneous route. The first dose of HS and BQ is administered at 6 months and above, then repeated annually at a dose of 3 ml by subcutaneous route

### Vaccination schedule followed for mithuns reared under the semi-intensive model

Disease	Vaccine (Trade name)	Dose and route	Primary vaccination (Age)	Booster	Revaccination
Foot and mouth disease (FMD)	Raksha Trivalent FMD	3 mL, subcutaneously	4 months	2-4 weeks after primary vaccination	Every 6 months
Haemorrhagic Septicaemia (HS) and Black Quarter (BQ)	Raksha HS + BQ	3 mL, subcutaneously	6 months and above	-	Annually

## I. Capacity building programmes for mithun farmers

Regular training programmes are conducted by the institute for mithun rearing farmers to teach and train on the various aspects of scientific mithun husbandry to improve income. Through the training, farmers are educated on the potential and diversified use of mithun under Semi-Intensive farming. In addition, the training covers care and management of young, pregnant and lactating animals, selection of mithun breeding bull and breeding management, feeding management and fodder resources for mithun, health management, and entrepreneurship development. From 2016 to 2021 various training programmes have been organized for mithun farmers of northeastern states.



### Training programme organized for mithun farmers of different northeastern states (2016-2021)

S. No.	State	Year	Village and District	Nature of programme	Beneficiaries
1	Arunachal Pradesh	2016-17	Mani, Papumpare	Interface meeting and farmers scientists interaction	162
2		2016-17	Mani, Papumpare	Mithun mela cum Technology injection programme	130
3		2017-18	Boa simla, kamle	Mithun Mela cum Technology Injection programme	222
4		2017-18	East Siang	Training of Mithun Farmers on Care and Management of Mithun for higher Productivity and Exposure visit under TSP	15
5		2018-19	Ledum, East Siang	Mela cum technology injection programme	358
6		2019-20	Mai, Lower Subansiri	Hands on Training on Semi-Intensive Mithun Farming	9
7		2020-21	Mai, Lower Subansiri	Technology Awareness cum TSP input distribution	175
8		2020-21	Dorpa, Papum Pare	Technology Awareness cum Animal Health Camp and TSP input distribution	258
9	Nagaland	2016-17	Tening, Paren	Farmers awareness programme and health camp	105
10		2016-17	Tobu, Mon	Awareness programme on scientific rearing of mithun & inputs distribution	38
11		2016-17	Dimapur	Farmers' Training on Scientific Mithun Husbandry Practices and preparation of Mithun Milk and meat products	25
12		2017-18	Pungro, Kiphire	Technology awareness cum Mithun Mela	242
13		2019-20	Tening, Paren	Technology Awareness programme cum Mithun Mela	552
14		2019-20	Porba, Phek	Mithun Mela cum farmers scientist interaction & vaccination programme	418
15		2019-20	Punglwa, Paren	TSP inputs distribution & awareness programme	26

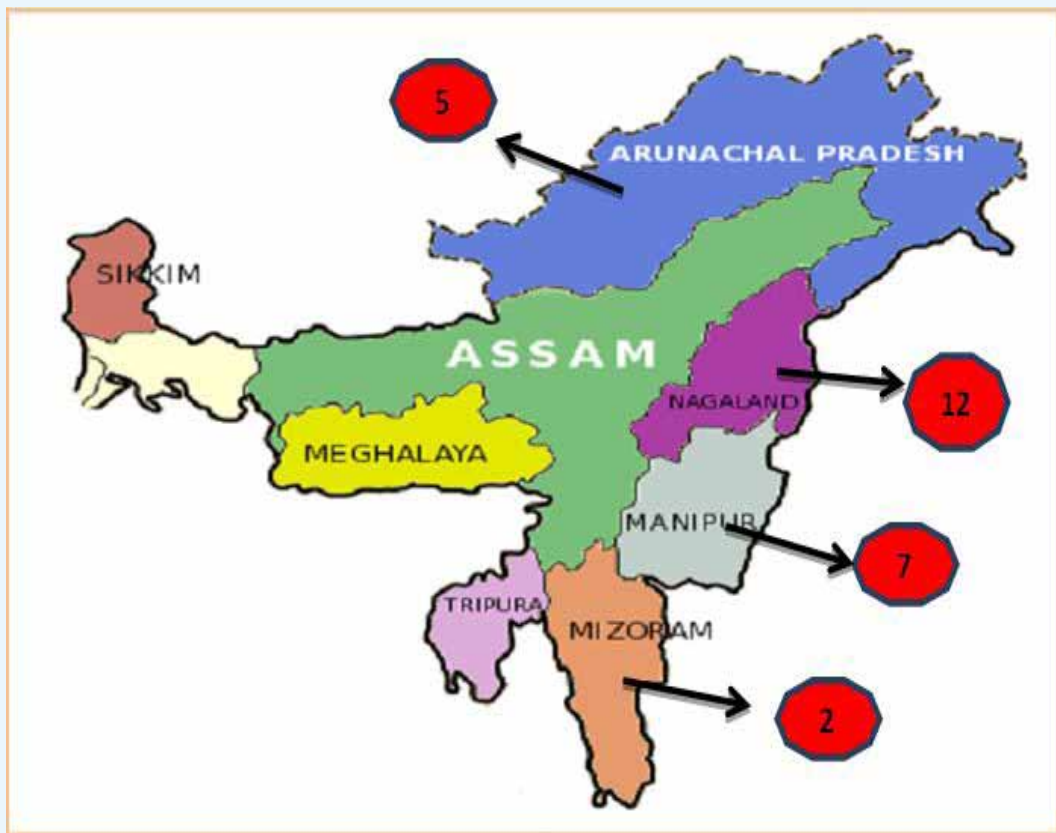
S. No.	State	Year	Village and District	Nature of programme	Beneficiaries
16	Nagaland	2019-20	Mon	Farmers' exposure visit to Mithun farm	30
17		2019-20	Gedimi, Lenezo, Losami, Lower Khomi, Meluri, Yorba and Porba, Phek	Awareness programme & TSP inputs distribution	257
18		2020-21	Nzau, Paren	Technology Awareness cum Animal Health Camp and TSP input distribution	86
19		2020-21	Dzudza, Kohima	Technology Awareness cum TSP input distribution	18
20		2020-21	Khonoma, Kohima	Technology Awareness cum TSP input distribution	54
21	Manipur	2016-17	Yankhullen, Senapati	Awareness programme on scientific rearing of mithun	201
22		2018-19	Machi, Tengnuopal	Mela cum technology injection programme	325
23		2019-20	Konsakhul, Kangpokpi	Technology Injection Programme	98
24		2019-20	Mawai, Kamjong	Technology Awareness programme cum Mithun Mela	364
25		2020-21	Bakie, Senapati	Technology Awareness cum Animal Health Camp and TSP input distribution	106
26		2020-21	Kangkum, kamjong	Technology Awareness cum TSP input distribution	107
27		2020-21	Mawai, Kamjong	Technology Awareness cum TSP input distribution	103
28	Mizoram	2016-17	Khuangleng, Champhai	Mithun Mela cum farmer's awareness programme	189
29		2016-17	Aizawl	stakeholders meet Semi-intensive on Mithun farming as Alternative source of Livelihood	120
30	Nagaland,	2017-18	-	Scientific Care and Management of Mithun Cum Exposure visit	55
31	Manipur & Arunachal	2019-20	-	Review of Semi-Intensive Mithun Rearing Units set-up under TSP	59

## Semi-intensive mithun rearing models established

So far, the Institute has established 26 semi-intensive mithun rearing models under field conditions across all the mithun rearing states (Arunachal Pradesh, Nagaland, Manipur and Mizoram). Also, barbed wires, Travis, CGI sheets, gumboots and raincoats were distributed to the mithun rearing villages for the construction of sheds, mithun salt lick and fencing for easy monitoring and supervision of the mithuns. Mithun bulls were also provided either for conservation and propagation.

### List of semi-intensive models developed (2016-2021)

S. No.	State	Name of Village & District	Year of Establishment	Beneficiaries
1	Nagaland	Yimchung, Longleng	2017-18	
2		Gidemi Village, Phek District	2017-18	9
3		Tobu Village, Mon District	2017-18	
4		Tening Village, Peren District	2017-18	13
5		Molvom village, Dimapur	2017-18	
6		Pungro Village, Kiphire District	2018-19	
7		Khonoma Village, Kohima District	2018-19	21
8		Porba Village, Phek District	2018-19	100
9		Punglwa Village, Phel District	2018-19	26
10		Dzudza, Viphoma Village, Kohima District	2020-21	18
11		Khonoma Village, Kohima District	2020-21	47
12		Nzau Village, Peren District	2020-21	24
13	Manipur	Yangkhullen Village, Senapati District	2016-17	150
14		Machi Village, Tengnoupal District	2018-19	80
15		Haipi Village, Kangpokpi District	2019-20	150
16		Machi village, Tengnoupal District	2019-20	86
17		Kangkum Village, Kamjong District	2020-21	20
18		Mawai village, Kamjong District	2020-21	32
19		Bakie Village, Senapati District	2020-21	37
20	Arunachal Pradesh	Boasimla Village, Lower Subansari District	2017-18	68
21		Mirem Village, East Siang District	2017-18	50
22		Ledum Village, East Siang District	2018-19	60
23		Dorpa, Papum Pare District	2020-21	45
24		Mai, Lower Subansiri District	2020-21	70
25	Mizoram	Saiha District	2017-18	
26		Champhai District	2017-18	



Number of semi-intensive rearing units established state wise

## GLIMPSES OF THE SEMI-INTENSIVE MITHUN REARING UNITS ESTABLISHED



Village: Tobu State: Nagaland



Village: Molvom State: Nagaland



Village: Yangkhullen State: Manipur



Village: Mai State: Arunachal Pradesh

### Key result/insight/interesting facts

The benefits of semi-intensive rearing of mithun are:

1. It helps in better monitoring and supervision of the mithun
2. Increase in income of the mithun farmers
3. Resting sheds for the mithun with provisions for water and common salt licking block has helped the farmers in reaching out to a larger number of mithuns at a common area without having to venture deep into the jungles
4. Demarcation of the mithun rearing areas from the agricultural fields.
5. Decrease in mithun-human conflict, because of fencing and ear tags issued for the mithuns
6. Easier handling and restraining of the mithun during vaccination with the help of the Travis provided
7. In one of the villages in Manipur (Yangkhullen village), the fencing inputs distributed has brought a decrease in the number of mithun mortality rate due to falling off the steep hills.
8. An increase in the mithun population was recorded in areas where mithun bull was provided by the Institute viz. Punglwa and Gidemi village in Nagaland.

# SUCCESS STORY-1

## AUGMENTING FARMERS INCOME THROUGH SEMI-INTENSIVE MITHUN FARMING IN TENING VILLAGE, PEREN DISTRICT, NAGALAND

### Background

Tening Village is a village panchayat largely inhabited by the Zeliang tribes located in the Peren district of Nagaland state. It lies approximately between 25.3035°N latitude and 93.5908° E longitude and is located at 1445m above MSL. The village has been rearing mithun since time immemorial under the Mithun Society Tening and it has been handed down from generations. At one point in time, there were about 300 or more Mithun with 30-40 owners in the village. However, due to the migration of the farmers to the town in search of better employment opportunities, the rearing of mithun was affected as most farmers sold their mithuns and till 2016, only 50 mithuns remained with 8 owners. They would practice the age-old method of letting loose their mithuns in the community forest without any provision of shelter and supplementary feeding except the occasional provision of salt. However, in the year 2017, the mithun farmers decided that they needed to act quickly to conserve mithun as it was very significant to their socio-cultural life. They then approached ICAR-NRC on Mithun, Medziphema requesting assistance of any kind to help them conserve their mithun population. The office after a thorough inspection of the village decided to assist the society based on the problems reported:\

1. High mortality due to diseases and predators attack especially the newborn calves
2. Lack of a proper identification system for mithun under the existing free-range system leads to ownership conflicts between the mithun farmers.
3. Lack of feed supplementation and non-availability of sufficient feed/ fodder viz., tree leaves and grasses, particularly during the lean season, may adversely affect the growth and reproductive performance.
4. High cost of fencing materials.



### Initiative

Based on the problems reported, ICAR-NRC on Mithun in the year 2017, under the Tribal Sub Plan scheme, conducted one Mithun *mela* cum Technology Injection Programme and introduced a semi-intensive mithun rearing model in the village by providing the following inputs viz. 15 rolls barbed wires, 30 CGI sheets, 100 ear tags, one travis, one mithun bull, 5 pairs of gumboots and raincoats. A mithun shed, salt and mineral licking block was also constructed so that a night shelter for the mithuns would be available. A total of 2 hectares of forest area was fenced.

### Impact of the technology

There was an increase in the number of mithun farmers from 8 to 13. Since the intervention, an increase in the mithun population was observed from 50 (2016) to 70 (2020) despite having sold 15 mithuns between these years. A total of Rs. 9,75,000/- was obtained as profit during the period. The market value of the herd is approximately Rs. 5,200,000/- considering that there are 30 males (Average price per mithun Rs. 70,000/-) and 40 females (Average price per mithun Rs. 55,000/-).







## Significant benefits of the intervention

- It has helped in better monitoring and supervision of the mithun
- Decrease in the death of calves from predator attacks
- Resting sheds for the mithun with provisions for water and common salt licking block has helped the farmers in reaching out to a larger number of mithuns at a common area without having to venture deep into the jungles
- Decrease in mithun-human conflict, because of fencing and ear tagging of all the mithuns
- Easier handling and restraining of the mithun during vaccination with the help of the Travis provided
- Regular vaccination against common infectious diseases, prophylactic deworming, and other health care practices are being followed.
- No FMD outbreak has been reported since the intervention

## Follow up

Based on the positive impact of the technology, another 35 rolls of barbed wires, 35 CGI sheets, 10 pairs of gumboots, 10 raincoats, two ear applicators and 100 ear tags were provided to the society on the 17.08.2021 as further assistance to improve the units and two Animal Health cum Vaccination camp and one training was conducted.

## SUCCESS STORY-2

### CONSERVATION AND PROPAGATION OF MITHUN THROUGH SEMI-INTENSIVE MITHUN FARMING IN YAKHULLEN VILLAGE, SENAPATI DISTRICT, MANIPUR

#### Background

Yangkhullen is a small town in the Senapati district of Manipur which is famous for its natural beauty, historical past and magnificent traditions. Some 75 km north of Senapati town, Yangkhullen is a historical town and a tourist destination in the Senapati district. It lies approximately between 25.5214°N latitude and 93.9617° E longitude. The farmers are entirely dependent on agriculture and mithun farming as a source of income and have been rearing mithun since time immemorial. The village due to its strong inter-cultural linkages with mithun has even formed the Zangna Society for Cultural and Rural Development that will be responsible for its conservation and propagation. The society had about 150 members with around 220 mithuns in the year 2016. Like all other mithun rearing villages, they have been adopting the age-old method of letting loose their mithuns in the community forest without any provision of shelter and supplementary feeding except the occasional provision of salt. This method, however, has resulted in the death of 20 mithuns every year due to the falling of the mithun from the steep terrain and mountains. The unique location of the village on the hilltop is a wonder to the eyes but a big deterrent to the lives of the mithun. Since they were resource-poor farmers they did not have the purchasing power to buy barbed wires to fence the jungles and prevent the falling of mithun from these steep mountains. Due to this constant problem, the mithun farmers under the Zangna Society for Cultural and Rural Development approached ICAR-NRC on Mithun seeking a solution to their problem in 2016.

#### Initiative

ICAR-NRC on Mithun in the year 2017, under the Tribal Sub Plan Scheme, conducted a Mithun *mela* cum Technology Injection Programme and thereon introduced the semi-intensive mithun rearing model in the village by providing the following inputs viz. 30 rolls barbed wires, 70 CGI sheets, 3 pairs of gumboots and raincoats. A total of one and a half kilometres of forest area was fenced.



### Impact of the technology

As the farmers are solely dependent on mithun they would sell around 5 mithuns every year. Since the intervention, they have been able to sell about 10 mithuns per year and even observed an increase in the mithun population from 220 (2016) to 300 (2020). An increase in the number of mithun farmers was also recorded in the society from 150 to 160 members. A total of Rs. 2,900,000/- was earned as profit during the period.

### Significant benefits of the intervention

- No mortality was recorded again from mithun falling of steep mountains
- It has helped in better monitoring and supervision of the mithun
- Night shelter for the mithun with provisions for water and common salt licking block
- Decrease in the death of calves from predator attacks

### Follow up

Based on the positive impact of the technology, another 35 rolls of barbed wires, 35 CGI sheets, 10 pairs of gumboots, 10 raincoats, two ear applicators and 100 ear tags were provided to the society on the 18.08.2021 as further assistance to improve the units for mithun conservation and propagation. The mithun farmers have also registered their society under the Institute database through the Mithunmitra mobile app and are receiving mithun husbandry related information frequently.

## SUCCESS STORY-3

### SEMI-INTENSIVE MITHUN FARMING: A BOON FOR MITHUN FARMERS INCOME IN HAIPI VILLAGE, KANGPOKPI DISTRICT MANIPUR

#### Background

Haipi is a beautiful and clean village located in the Kangpokpi district of Manipur. It lies approximately between 25.1331°N latitude and 93.9219° E longitude. The village is largely inhabited by the Thadou-Kukitribes who share a very intimate relationship with mithun. Mithun to them is akin to gold and is one of their most important assets. The village has been rearing mithun since 1986 and has established a society “The Haipi Mithun Rearing Co-operative Society Limited” for the welfare of the mithuns in the village. Apart from rearing mithun, piglets and poultry, the majority of the farmers practice subsistence agriculture under *jhum* fields to support their livelihood. Mithuns in the village are generally reared without much supervision and are let loose in the community jungles. A mithun herdsman is employed to monitor the mithuns and occasionally feed them salt. But due to the vast jungle area of the village, in most cases, the herdsman are not able to monitor all the mithuns as they tend to stray deep into the jungles. As a result, mithuns would trespass into the agricultural fields of the neighbouring villages and often get shot dead in such instances. However, in some cases, mithun owners are required to pay a hefty fine (Rs. 500/- per mithun footprint noticed in damaged fields) as compensation for the crop damage. The society on their part has been trying to erect bamboo fencing and digging trenches to prevent the trespassing of animals but have failed at most times. To add further, the village has been witnessing a disease outbreak almost every three to four years gap as a result they have suffered huge economic losses. Due to these constant problems, the mithun farmers under the The Haipi Mithun Rearing Co-operative Society Limited approached ICAR-NRC on Mithun and requested some assistance to tackle their problems in 2016.

#### Initiative

ICAR-NRC on Mithun in the year 2016, under the Tribal Sub Plan Scheme, conducted a Mithunmela cum scientist interaction programme in the village and introduced the semi-intensive mithun rearing model in the village by providing the following inputs viz. 40 rolls barbed wires, 70 CGI sheets, 5 pairs of gumboots and

raincoats. During the programmes, the mithuns were ear-tagged and farmers were trained on how to restrain mithuns.

### Impact of the technology

Since the intervention, there has been a significant increase in the mithun population from 40 to 60 in number. Around 5kms of the forest area has been fenced preventing the mithuns from trespassing into the nearby agricultural fields. Four mithun sheds have been constructed for providing shelter to the mithuns. There has also been an increase of four number of mithun farmers in the society. More mithuns are now available for sale and to date, they have sold 16 male mithuns and 10 female mithuns at an average price of Rs. 80,000 and Rs. 70,000, respectively. A total of Rs. 1,980,000/- was earned as profit since the intervention which would not have been possible earlier due to the constant threat to the mithun lives from the neighbouring villages.

### Significant benefits of the intervention

- Increase in the income of the mithun farmers
- Reduction in the frequency of the mithun human conflicts which otherwise was a major constraint
- Night shelter for the mithun with provisions for water



## SUCCESS STORY-4

### DISEASES PREVENTION AND CONTROL THROUGH SEMI-INTENSIVE MITHUN FARMING IN MACHI VILLAGE, TENGNOUNAL DISTRICT MANIPUR

#### Background

Machi village is a vibrant hilly village located in the Tengenoual district of Manipur. The village is dominated by the Maring tribes and is located about 1500m above MSL and lies approximately between 24.5058°N latitude and 94.1418° E longitude. Mithun or Sandang (common name in Manipur) in Machi plays a great role in the socio-economic, cultural and economic lives of the people of the Maring tribe. Even the naming convention of children in the village begins with a sacrifice of mithun so that the child grows up and lead a life “worth his name”. Such is the importance that mithun for the Maring community of Machi village that they have been associated with the animal since 1792. The village has established the Livestock Mithun Farming Society comprising of farmers who owned and rear mithun to look into the welfare of the animal. At present, the total mithun population in the village is 314 with 82 members in the society. Like all other adjoining villages mithun are reared in community forest and let loose in the jungles. These mithuns often venture into the neighbouring country i.e. Myanmar making them very susceptible to transboundary diseases particularly Foot and Mouth Disease (FMD) and Hemorrhagic Septicemia (HS). As a result, FMD outbreak is often reported from this village and the adjoining villages. The disease would often cause great economic losses to the farmers. Due to this constant disease outbreak, the mithun farmers approached ICAR-NRC on Mithun and requested some assistance to tackle their problems in 2019.



## Initiative

ICAR-NRC on Mithun in the year 2019, under the Tribal Sub Plan Scheme, conducted a Mithun *mela* cum technology awareness programme in the village and introduced the semi-intensive mithun rearing model in the village by providing the following inputs viz. 40 rolls barbed wires, 70 CGI sheets, 5 pairs of gumboots, raincoats, 500 ear tags and 2 ear tag applicators. During the programmes, an animal health cum vaccination camp was also conducted wherein the mithuns were vaccinated against FMD and HS.



## Impact of the technology

During the mithun *mela*, the farmers were trained on how to restrain mithuns and construct a travis out of the naturally available resources to aid in the restraining of mithun during vaccination. The semi-intensive unit established has now stopped the mithun from venturing far away from the community forest of the villages reducing the chance of contacting FMD. A significant increase in the mithun population from 274 to 314 mithuns was observed since the intervention. No disease outbreak has again been reported. There has also been an increase in the number of mithun farmers in society. Since mithun was a symbolic pride to the Maring tribes mithun are generally not sold. But since the intervention due to the decline in predator attacks and mithun mortality due to FMD, there has been an increase in the mithun population and have been able to sell 20 mithuns (14 nos. male @ Rs. 85,000/- mithun and 6 nos. female @ Rs. 65,000/- mithun). A total of Rs. 1,580,000/- was earned as profit since the intervention which would not have been possible earlier due to the constant threat to the mithun lives from the FMD outbreaks.



## Significant benefits of the intervention

- No disease outbreak has been reported since the intervention
- Mithuns do not venture deep into the jungles anymore as a common shelter has been made available
- Increase in the income of the mithun farmers
- Reduction in the frequency of predator attacks on the calf by 20%

## SUCCESS STORY-5

### IMPROVEMENT OF TRADITIONAL MITHUN FARMING UNDER TRIBAL SUB PLAN (TSP)

**Village adoption:** The Institute has taken an initiative by adopting a Gidemi village under the Phek district of Nagaland. Gidemi village had abandoned mithun farming 3 decades ago due to increasing mithun-human and human-human conflicts. After years of deliberation, the Gidemi Village Authority/Council then decided that they would rear mithun again and in the year 2017 approached the Institute. Later a meeting was held with the Village Council members and village development board, an SHG for the rearing of mithun has been constituted.

**NB:** Mithun based SHG has been constituted to regulate and manage the semi-intensive mithun farm as a profitable venture. The members are responsible for the maintenance of the designated mithun range feeding, watering, breeding, tree fodder plantation, and record keeping. Finally, the MoU was signed with ICAR-NRC on Mithun for doubling the farmer's income.

Two mithun sheds were constructed at Gidemi village with the help of inputs provided by the Institute under the TSP program. Following the completion of the shed, Travis and fencing area 6 mithun (1 bull and 6 heifers) were supplied from the Institute side to the village.



MOU between VCC, Gidemi and ICAR-NRC on Mithun, Medziphema



## Impact of the Technology:

Semi-intensive farming was successfully introduced and adopted as a viable and sustainable economic activity in Gidemi Village adopted under Doubling Farmers Income by 2022. Two herdsmen were employed by the village development board to oversee the enterprise with initial financial assistance from ICAR-NRC on Mithun for 6 months. The initial investment on mithun heifers and bull was Rs2,40,000/- @ Rs 40,000/- Rearing the mithun for 20 months the market value of the stock is at Rs4,20,000/- @Rs 70,000/-. Four mithun calved (3 male and 1 female) following synchronization of oestrus. The rest of one mithun heifer is at an advanced stage of pregnancy. The stock at present has therefore increased to 10 animals and the market value shall be at Rs5,00,000/- approximately considering Rs 20000/- as market price per calf.



GPS mapping forest land at Gidemi village allotted for semi-intensive mithun raising



Mithun provided to Gidemi Village Council



Village council members and youth receiving the inputs for semi-intensive mithun farming.



## MITHUN-MITRA MOBILE APP

The Mithun – Mitra Mobile app is an initiative of ICAR-NRC on Mithun to create awareness and promote among the mithun farmers as well as other stakeholders scientific mithun husbandry for diversified use of mithun as a source of meat, milk, hide and draught power. The app serves as a single-window delivery system for information on mithun viz. semi-intensive mithun rearing system, feeding, breeding, management and various aspects of scientific mithun husbandry that are readily available offline on the app. The app serves to educate the mithun farmers on the nutritional qualities of mithun meat and how value-added meat and milk products like patties,



nuggets, meatballs, pickle, lassi, dahi, rosagulla, paneer, etc can be prepared out of mithun meat and milk and how mithun hide can be used as a leather source for the leather industry. One unique feature of the app is its registration interface, wherein the mithun farmers can register their mithun rearing societies with the institute database. A total of 120 societies have been registered to date. All the societies where semi-intensive units have been established have been registered in the mobile app and are receiving mithun husbandry-related information from time to time.

State	Mithun societies registered	No. of mithun farmers	No. of mithuns
Arunachal Pradesh	31	578	2378
Manipur	10	170	900
Mizoram	20	480	2560
Nagaland	59	1951	5944
Total	120	3179	11782

## Lesson learned

Mithun farming is a very profitable venture if they are reared in a semi-intensive system, with proper care and management by a mithun herdsman. It helps in reducing mortality due to harsh weather conditions and attacks by wild animals. Also helps in better supervision and monitoring of animal health conditions. One of the most important problems faced during the process was to convince the farmers for adopting mithun rearing. However, with continuous discussion with the village council and assurance of initial support for the establishment of sheds, fencing area, Travis and an initial supply of breeding animals they finally agreed.

## TRIBAL SUB PLAN- AT A GLANCE

The erstwhile Tribal Sub Plan, now renamed as Scheduled Tribe Component is a plan for the socio-economic development of the tribal and tribal areas. TSP believes in 'Planning from the below' catering to the local needs. As the tribal communities are not homogenous and not at the same levels of development, different programmes and approach needed for different tribes. TSP is not a developmental package provided by the center; rather it is a plan made by the people for the overall development and improvement of quality of life of the tribals. The local needs and aspirations of the people reflect in the TSP.

### **The broad objectives of the TSP are as follows:**

- Substantial reduction in poverty and un-employment.
- Creation of productive assets in favour of Scheduled Tribes to sustain the growth likely to accrue through development efforts.
- Human resource development of the Scheduled Tribes by providing adequate educational and health services.
- Provision of physical and financial security against all types of exploitation and oppression.

### **Type of work to be undertaken under TSP:**

- Only those schemes may be included under TSP which ensures direct benefits to individual or families belonging to Scheduled Tribes.
- Schemes to develop agriculture and allied activities like irrigation, animal husbandry, dairy development, vocational training etc. that provide a source of livelihood to the ST population may be included.
- Innovative projects that draw upon institutional finance to supplement plan allocation may be drawn up.
- Creation of productive assets in favour of the STs for substantial reduction in poverty and un-employment among the STs.









75  
Azadi Ka  
Amrit Mahotsav



हर कदम, हर डगर  
किसानों का हमसफर  
भारतीय कृषि अनुसंधान परिषद

*AgriSearch with a human touch*



**ICAR-NATIONAL RESEARCH CENTRE ON MITHUN**

MEDZIPHEMA, NAGALAND - 797 106

Website: [www.nrcmithun.icar.gov.in](http://www.nrcmithun.icar.gov.in)

 Nrc On Mithun  NRCMITHUN  Nrc Mithun

