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# SALT AND MINERAL LICKING BLOCK (SMLB) TECHNOLOGY FOR MITHUN



Tilling Tayo  
Manish Kanwat  
Homeswar Kalita  
S. V. Ngachan  
N. Prakash



**Krishi Vigyan Kendra, Anjaw**  
**ICAR Research Complex for NEH Region,**  
**Arunachal Pradesh Centre, Basar**



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Further contact to :

Sr. Scientist & Head  
Krishi Vigyan Kendra, Anjaw  
ICAR-RC for NEH Region,  
Arunachal Pradesh Centre, Basar  
E-mail : kvkanjaw.icar@gmail.com



# भारतीय कृषि अनुसंधान परिषद

उत्तर्पूर्ववी पर्वतीय क्षेत्र अनुसंधान परिसर  
उमियम (बड़ापनी), मेघालय - 793 103

**INDIAN COUNCIL OF AGRICULTURE RESEARCH**

ICAR Research Complex for NEH Region  
Umiam (Barapani), Meghalaya - 793 103



## FOREWORD

I am glad to know that the KVK Anjaw, Animal Science sections is going to publish extension bulletin entitle “**Salt & Mineral Licking Block (SMLB) Technology for Mithun**”. Mithun being the farmers most favorite animal in Arunachal Pradesh because of their uses in multi functions aspect such as bridal price, ritual sacrificial animal, last rite animal, payments of social dues and animal of barter for settlement of any dispute in society. However, despite many worth and uses of Mithun for the tribal societies of Arunachal Pradesh, monitoring of mithun in jungle is one of the most tedious and tired some job in whole traditional method of mithun productions.

To mitigate the monitoring work load in traditional mithun production systems. **Salt Mineral Licking Block (SMLB) Technology for Mithun** by construction of permanent structure in strategic locations to attract mithun, so that mithun will come to lick on SMLB, will definitely address the monitoring work load by mithun farmers.

I heartily congratulate Sr. Scientist & Head of KVK Anjaw for guiding and constant encouragements to his team for nurturing such innovative ideas despite working in one of the remotest area of Arunachal Pradesh. I also convey my heartfelt appreciation to Dr. Tiling Tayo, SMS (Animal Science) for developing such a farmers’ friendly innovative technology for mithun. I wish him all the very best to the entire KVK Anjaw team for doing such beautiful, creative, need based work in the district beside remotness and all the bottlenecks they are committed and performing their duties with wholeheartedly.

God Bless you all.

Director  
ICAR, RC for NEH Region



भा. कृ. अनु. प. - कृषि प्रौद्योगिक अनुप्रयोग अनुसंधान संस्थान, अंचल - ६  
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ICAR - Agricultural Technology Application Research Institute, Zone - VI  
Indian Council of Agricultural Research  
CPCRI Campus, Kahikuchi, Guwahati - 781017

Telephone : 9436108690 :: Email - aktripathi2020@yahoo.co.in, aktripathi2020@gmail.com



## FOREWORD

It gives me immense pleasure to know that KVK Anjaw is going to publish the technical bulletin entitled “**Salt & Mineral Licking Block (SMLB) Technology for Mithun**” for the welfare of tribal farming community of Arunachal Pradesh. In the recent era of digital India, drudery reduction in Agriculture and Allied sector is one of most important thematic area, if any scientists or extension personal can intervene by developing new innovative ideas or technology to reduce the workload during executing in any Agri & Allied management or production system without compromise the quality of production and productivity parameters. Will, definitely increase the income of farmers, by adopting the new economic viable and profitable ventures, helps in sustainable livelihood development. This SMLB technology is based on the drudgery reduction for Mithun rearing farmers to mitigate the workload in monitoring their Mithun in jungle, thereby Constructing permanent SMLB structure in strategic location to attract Mithun and farmers can easily monitor their Mithun by visiting at SMLB plot.

I wish Sr. Scientist & Head KVK Anjaw for his dynamic leadership helps to develop this KVK as innovation center in the region and also thanks to SMS Animal Science for his farmers centric creation addressing the problems faced by Mithun Farmers in Arunachal Pradesh.

**Dr. A. K. Tripathi**  
Director

## BACKGROUND

Mithun are considered as the most blessed animal in Mishmi society, they are used for bridal price during marriage ceremony, as a sacred animal for rituals, scarification and last rite Animal to honour the departed soul to rest in peace. Mithun is reared under semi-domesticated systems; they let loose to roam in jungle freely. However, owner has to visit in jungle frequently twice or thrice a month to monitor the presence of their Mithun in jungle. Monitoring mithun in jungle is one of the most tedious and tired some job in entire mithun husbandry system, due to which till date women and children cannot involve in Mithun husbandry. It has been observed that salt is the only component used as a barter of instrument to keep in touch between mithun and owner. It is normally practiced that, once mithun are spotted in jungle, owners have to feed handful of salt and mithun have very high affinity towards licking salt. Considering salts as a corner stone in the traditional method of mithun production system. Salt & Mineral licking block (SMLB) concept has developed based on drudgery reduction in traditional method of mithun production system, thereby establishing a permanent structure of SMLB at certain strategic location, so that mithun could come to lick the block and monitoring workload of owners are mitigated. Because once the mithun sensitizes, for the presence of salt in SMLB, they will regularly visit the spot. Therefore, Mithun owner has to visit in SMLB spot to find their mithun and even women and children can take part in mithun husbandry by regularly visiting at SMLB spot. As a result, there is drudgery reduction in tracking mithun in jungle, thereby facilitating easy method of monitoring during entire mithun production system under free-range system of domestication, without much changing their traditional system of mithun productions.

## **What is salt and mineral licking block (SMLB)?**

Salt and mineral licking block (SMLB), is a permanent concrete structure, composed of two layers, base and apex: The base part of SMLB, 2 ft above the ground level are composed of sand, cement and stone gravels in 4:1:2 ratio respectively. The apex parts of SMLB, 0.4 ft (4.8") are composed of Salt, Mineral Mixture, Cement and Fine sand in 1:0.05:1:5 ratios respectively.

## **Importance of salt and mineral mixture in livestock**

Salt is a basic element of life, made up of two vital nutrients: sodium and chloride. Sodium is necessary for the animal nervous system, muscles, blood and other functions. While chloride benefits the blood and aids in digestion. Mineral are of two-type, Macro mineral and micro mineral. Macro mineral are required for bone growth, repair, chemical reactions in muscles, skeletal growth and protein synthesis. Micromineral or trace minerals are minerals required in small quantities. These include chromium, cobalt, copper, fluorine, iodine, iron, manganese molybdenum, selenium, and zinc. They require for activates certain enzymes, for normal bones, teeth, blood formation and helps in blood clotting. More ever the hilly soil are acidic in nature, due to leaching process, there is low content of salt and other mineral in feeds and fodder relish by livestock reared under open rang system. Therefore, supplementation of salt and mineral mixture in diet of livestock is very essential for maintaining good health and production as well.

## **OBJECTIVE OF TECHNOLOGY**

1. Drudgery reduction, in terms of monitoring Mithun in jungle
2. Quench salt hunger of Mithun
3. Boost ecotourism (Mithun view point)

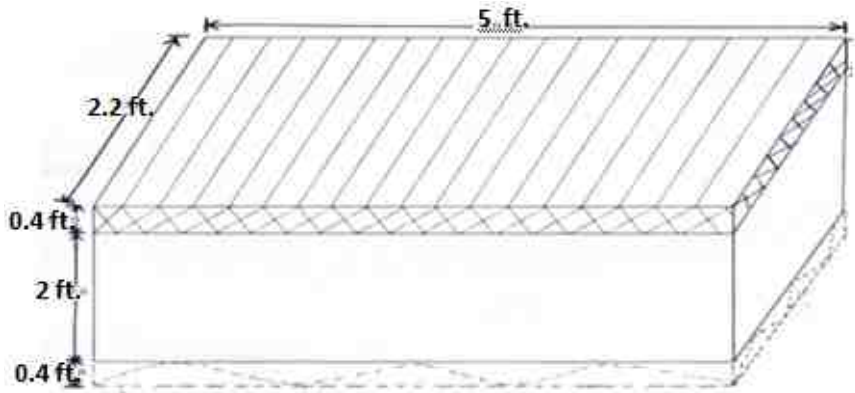
## **MATERIAL REQUIRED**

### **A. INGREDIENTS REQUIRED**

1. Common salt (Coarse)
2. Mineral Mixture
3. Cement
4. Sand
  - a. Fine sand
  - b. Coarse sand
5. Stone gravels
6. Cart/wood

### **B. PROPORTION OF INGREDIENTS**

1. Top 0.4ft (4.8") inches ingredients required ratio are :  
Salt : Cement : Fine Sand : Mineral Mixture (1:1:5:0.05)
2. Base 2.4ft ingredients required ratio are:  
Sand : Cement : Stone gravels (4:1:2)



### A. STANDARD SIZE

LxBxH (5x 2.2 x 2.4) ft

### B. QUANTITY REQUIRED

Cement = 6 bags

Salt = 60 kg

Mineral Mixture = 2.5 kg

Sand = 23 bags

Stone gravels = 10 bags

### C. AMOUNTS REQUIRED

Cement = @ Rs 500/bag = 6x 500 = Rs 3000.00

Salt = @ Rs 10/ kg = 60x 10 = Rs 600.00

Mineral Mixture = 2.5 kg = Rs 400.00

Sand & Stone gravels= 23 + 10 bags =Rs 2000.00

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**Total= Rs 6,000.00**



## D. AREA SELECTION

1. Plain area preferable with natural shed with available drinking water source nearby.

## E. PROCESS OF MAKING

- 1) Clearing and measurement of area for earth cutting



- 2) 0.4 ft base earth cutting: It is required to prevent the tilting and cracking of SMLB.



- 3) Prepare wooden box of required size (5 x 2.2 x 2.4 ft), using measuring tape.



- 4) Give support to wooden box using locally available wooden material to prevent the breakage of wooden box by the pressure weight of cement and other ingredients.



- 5) Mix sand, cement and stone gravel. Pour water in the middle of mixture, making local pond and keep it for 1 hour and mix the ingredient thoroughly with spade and shovel.



- 6) Transfer the mixture into the fixed wooden box placed in dig pit, with simultaneous pocking the mixture with blunt wood for evenly distributions of mixture, and to prevent the creation of vacuum space.



- 7) Prepare another mixture using salt, mineral mixture, cement and fine sand at ratio (1:0.05:1:5) and mix the ingredients properly

using spade for better spreading of ingredient at optimum proportion for better result before mixing with water.



- 8) Transfer the mixture into the same wooden box, on top of already filled with cement, sand and stone gravels to make it 4.8 inches thickness above the base of supporting structure.



- 9) Level it properly using flat wooden material for better licking for Mithun.



- 10) Keep it without disturbing for 7 days for proper setting of cements and other ingredients.



- 11) Open the wooden box after 7 days and evenly spread few amount of salt on the surface of SMLB at first to sensitize the animal about presence of salt in SMLB. Once the mithun get salt taste on

licking the block, they develop acquired Imprint character to visit the spot on regular interval to quench their salt hunger.



## **ADVANTAGES OF SMLB**

1. It avoids the regular visit of owner in jungle for monitoring their mithun.
2. Women and children can even take part in Mithun husbandry.
3. Apart from salt it also provide mineral to animal.
4. Animal health can be monitored more easily.
5. CCTV camera can be installed to monitor the visiting Mithun, digitally.
6. Mithun view point to boost ecotourism.

## BASIC QUESTION

Q. Why cement is use in salt and mineral licking block (SMLB) preparation?

Ans: Cement is use as binding agent in certain feed block preparation. Similarly, it is used as binding agent in SMLB preparations.

Q. Cement has ill effect on hand during handling or construction of house. Will it not affect the tongue of mithun while licking on SMLB?

Ans: Yes, raw cement before setting it may have ill effect on tongue but once the cement is mix with water, after exothermic reaction, cement becomes inert as stone after setting. Therefore, there is no any ill affect on animal tongue.

Q. While licking SMLB, small amount of sand will go into the stomach: does sand will not create any digestion problem in animal?

Ans: Yes, while licking small amount of sand may go into the stomach, but it will not have any deleterious effect. Because in free range system of rearing, often mithun & cattle drink very dirty water and relish fodder soiled with sand and silica. Therefore, small quantity of sand does not create any problem and it comes out during defecation along with faeces.

**Fig. 1-3. Mithun Licking Salt and Mineral Block (SMLB)**



*Source: OFT Field survey 2017, KVK Anjaw*





*Source: OFT Field survey 2017, KVK Anjaw*



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