Technologies Ready for Commercialization

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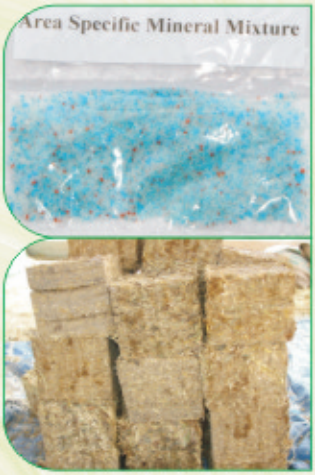
Area Specific Mineral Formulation for Feeding of Yak and Yak- Cattle Hybrid

(Developed by Dr. M. K. Ghosh)



Area specific mineral mixture formulation for yak and yak-cattle hybrid feeding is prepared with zinc (Zn), copper (Cu), cobalt (Co) and manganese (Mn) in the ratio of 40:20:2:1. Soil, feed and fodder of yak rearing regions are found deficient in certain trace minerals. Feeding mineral deficient feed resources to livestock lead to poor animal health and productivity. The above mentioned area specific mineral formulation is already proved to improve the yak health and production. Area specific minerals can further be supplemented in complete feed blocks made from locally available feed resources. Complete Feed Block is prepared by using Maize Stover, concentrate mixture and molasses in the ratio of 60:37:3. This has an additional advantage of an ease in transport and storage in difficult hilly terrain due to compact size of voluminous feed.

Flow Chart of the technology

Zinc, copper, cobalt and manganese salts
↓
Area specific mineral mixture
↓
Incorporated in complete feed blocks
[Made from locally available feed resources]
↓
[Yak & Yak-cattle hybrid feeding]

Business plan of the technology

Major machinery:

Feed block machine

(Capacity: 100-125Kg blocks/h; block size 15x15cm)

Quantity: one

Availability:

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Other machineries/accessories:

Analytical balance and Weighing balance (capacity: upto 300Kg)
Chap cutter

Space requirement:

A shed (size: 10×10 m): Required for installing feed block machine and chap cutter.
A storage room: Required for storage of feed blocks and raw materials.

Initial Cost of establishment:

1. Feed block machine:	₹ 5,00,000.00
2. Chap cutter:	₹ 20,000.00
3. Analytical balance & weighting balance:	₹ 1,00,000.00
4. A shed for machine installation:	₹ 50,000.00
5. A storage room:	₹ 1,00,000.00

[Total cost = ₹ 7.70 lakhs approximately]

Raw materials and production cost:

1. Cost of feed/raw materials:	₹ 1188.00/q
2. Electricity charge:	₹ 94.00/q
Total cost (feed+electricity):	**₹ 1282.00/q**

Risks/opportunities involved in adopting the technology

Risks:

Frequent power cuts make affect and increase the cost of production.

Opportunities:

Ease in transport through difficult hilly terrain. Complete feed blocks require a less storage space. This technology can be used for feeding of livestock during scarcity of food.

Functional Paneer from Yak Milk

(Developed by Dr Kandeepan G.)

Yak milk paneer is usually prepared with full fat milk having as high as 8.5% fat resulting in 25-30% fat in paneer. Increasing concerns among health conscious consumers demand development of low fat paneer. Interestingly, low fat paneer prepared from yak milk having 1% fat has very hard texture. Therefore, the effect of dietary fibers in improving the product quality of low fat paneer along with enhancement of dietary fiber content of the low fat paneer was undertaken. Among the dietary fibers evaluated, inulin @2% was found to be the best choice for incorporation in low fat paneer resulting in significant improvement in the product quality and dietary fiber content of low fat paneer.

Flow chart of technology

Heat the yak milk to 90°C for 15 sec
(1% milk fat for low fat paneer)

↓

Cool to 76°C

↓

Add 1% Citric acid mixed with dietary fiber kept at 70°C

↓

Allow whole content to cool to 70°C

↓

Allow coagulum to settle within 10 min

↓

Transfer coagulum to a muslin cloth or strainer

↓

Allow whey to drain

↓

Press coagulated mass with weight for 10 min
(about 5 times the weight of coagulum)

↓

Immerse blocks in chilled water at 4°C for 3 hr

↓

Drain excess water

↓

Package the product and store at 4°C

Business plan of the technology

Major machinery:

1.	Cream separator (1):	₹ 1,50,000/-
2.	Weighing balance (1):	₹ 10,000/-
3.	Analytical balance (1):	₹ 80,000/-
4.	Kettle/Vat (2):	₹ 2,000/-
5.	Milk can (2):	₹ 5,000/-
6.	Mixer grinder (1):	₹ 2,000/-
7.	Refrigerator (1):	₹ 20,000/-
8.	Milk analyzer (1):	₹ 3,00,000/-
9.	Packaging machine (1):	₹ 5,00,000/-
10.	Miscellaneous equipments:	₹ 5,000/-
11.	Gas stove (1):	₹ 6,000/-

Space requirement:

A room of 10 meter x 10 meter size for production, storage and packaging is required for this technology.

Initial Cost of establishment:

1.	Total cost of machinery:	₹ 10,80,000/-
2.	A room of 10m x 10m:	₹ 2,00,000/-

[Total cost = Rs. 12.80 lakhs approximately]

Raw material and production cost:

Rs. 190/- per kg including raw material (yak milk) and production cost.

Risks/opportunities involved in adopting the technology

Risk:

Less availability of yak milk

Opportunities:

High demand for yak milk products and a new product for the functional food market.

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