DEPARTMENT OF ANIMAL NUTRITION

TOPIC:-AREA SPECIFIC MINERAL MIXTURE TECHNOLOGY

INTRODUCTION

- **In India, there is high variation in the mineral content of feed and fodder of different agro-climatic zones due to many factors like mineral content of soil,rainfall,soiltype , cropping pattern etc.**
- **Thus there may be deficiency or surplus of a particular mineral between different agro-climatic zones, which is known as area specific.**
- **Area specific mineral mixture (ASMM) is developed in order to supply deficient minerals for optimum milk production and reproductive efficiency**

AREA SPECIFIC MINERAL MIXTURE

- **Minerals that are not sufficient from the feeds and fodders ingested by the animals only need to be supplemented through mineral mixture**
- **Mineral mixture should supply only those minerals that are deficient in the ration.**
- **Later NDDB initiated mineral mapping programme in different states ,by testing feeds and fodder samples in different agro-climatic zones to develop area specific mineral mixture.**
- **The programme has so far been completed in the states of Andhra Pradesh, Gujarat, Rajasthan, Kerala, Punjab and Maharashtra.**
- **In most of the areas Mg ,K ,Fe ,Mn & Se are more than sufficient whereas, Ca ,P, S, Na ,Cu, Zn & Co are deficient in some areas,**
- **There levels are adjusted accordingly in the formulations**

HOW TO PRODUCE GOOD QUALITY MINERAL MIXTURE

- **Mineral mixture is manufactured using dihydrate di-calcium phosphate (DCP) of rock phosphate origin and dried /monohydrate mineral salts.**
- **Dried/monohydrate mineral salts are crushed and mixed to a uniform particle size, using proper diluents ,in a separate device , called ball mill.**
- **These trace minerals pre-mix is taken in the ribbon mixer, along with DCP and few other mineral salts, for proper dispersion and uniform mixing.**
- **The resultant mineral mixture thus produced contains all minerals in desired proportion and stable form**
- **MINERAL MIXTURE SHOULD NOT CONTAIN ANY INGREDIENT OF ANIMAL ORIGIN, EVEN IN TRACES**

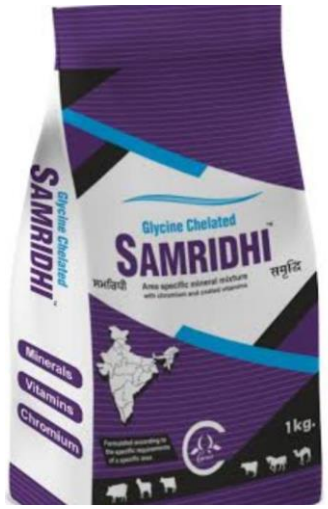
MINERAL MIXTURE MANUFACTURING PLANTS

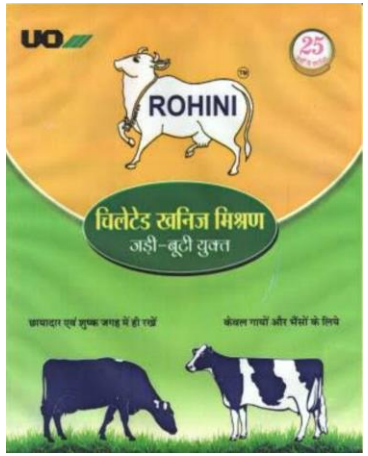
MINERAL MIXTURE FORMULATION

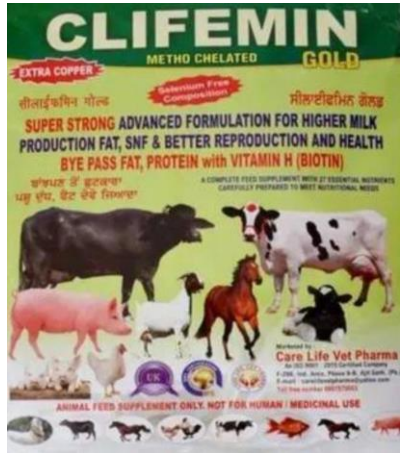
S.NO	Mineral	Requirement (%)
1	Calcium	20.0
2	Phosphorus	12.0
3	Magnesium	5.0
4	Sulphur	1.8-3.0
5	Copper	0.10
6	Zinc	0.80
7	Manganese	0.12
8	Iodine	0.026
9	Iron	0.40
10	Cobalt	0.012

ASMM FOR DIFFERENT REGIONS

S.NO	Name of ASMM	State/Area of recommendation
1	CHELATED SAMRIDHI	Punjab , Haryana ,U.P
2	MINKAM-UT	U.P, & Uttarakhand
3	ROHINI	Jaipur
4	GOUMIX	For all States
5	CLIFEMIN GOLD	For all states
6	KETAMINE MINERAL MIXTURE	Kerala
7	TANUVAS –SMART	Tamilnadu







NEW TECHNOLOGIES OF MINERAL MIXTURE

1.ASSM FOR MILK FEVER

- **Calcium deficiency leads to milk fever.**
- **Initiation of lactation induces great stress in 'ca' homeostasis & leads to milk fever in high producing dairy cows and buffaloes.**
- **Feeding a mineral mixture containing adequate Ca,P,&Mg 3-4 weeks prior to calving reduces the incidence of milk fever after calving.**

2. **DEGCURE FOR D DENGALA DISEASE**

- **Degnala is a chronic 'Se' toxicity disease.**
- **It causes high mortality in cattle, buffaloes in area of Punjab, UP and Haryana.**
- **It is caused by feeding paddy straw, or any fodder that containing high organic form of 'Se'.**
- **Hence as a part of ASMM degcure ,an antidote mixture was evolved@30g/day for 30 days in affected animal**

3. COMPLETE FEED BLOCKS

- Complete feed provides balanced and adequate availability of all nutrients.
- Complete diet containing roughage and concentrates can be compressed using hydraulic press after mixing in a uniform blend.
- Binder compounds helps to obtain the diet in block form of desired weight,shape and size.
- Compression helps in increasing the bulk denisty by about 3 times.

4.UREA MOLASSES MINERAL BLOCK LICK

- The solid blocks containing urea ,molasses ,some mineral mixture and organic materials have been developed.
- Urea is dissolved in molasses at an optimum temperature and other contents are mixed and put into blocks to set.
- Dose:-0.5-0.6Kg of brick in 24hrs.

Uses:-1,Provide nitrogen and energy to the microbes of rumen.

2, Increase urea utilization by microbes for protein synthesis.

3, Maintain energy and protein ratio in diet.

4, Increases the straw intake.

DIRECTIONS FOR USE

MILCH COWS AND BUFFALOES:- 100-200g daily, depending upon level of milk production.

GROWING AND NON –PRODUCING ANIMALS:- 50g daily/animal

YOUNG CALVES:-20-25g daily for better weight gain

(OR)

as advised by the veterinarian/nutrionist

MODE OF FEEDING MINERAL MIXTURE

- Mineral mixture can be fed by mixing it with concentrate mixture or by mixing 15-20g common salt to it
- Usually, compound cattle feed contains mineral mixture at varying levels, however additional requirement can be met by mixing it with feed

BENEFITS OF FEEDING AREA SPECIFIC MINERAL MIXTURE

1. Improves reproduction efficiency in male and female animal
2. Reduce inter-calving period leading to more productive life of animals
3. It improves nutrient utilization, mineral bioavailability and milk production efficiency.
4. Improves milk production and SNF content of milk
5. Better immune response ,hence better resistance against diseases
6. Calves born are healthy.
7. Improves general health of animals
8. More economical and effective ,if it is area specific.
9. Increase milk yield upto10-15% during lactation period without any adverse effect.
10. It decreases the Problem of skin keratinzation in animals.
11. Improves growth rate of calves, hence early puberty.

REFERENCE:-https://epashupalan.com/9393/animal-nutrition/feeding-of-area-specific-mineral-mixture-to-dairy-animals-need-of-the-hour/

https://wp.me/pbYZMt-2rv

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