

# COMPOUND CATTLE FEED



***A BALANCED SUPPLEMENT FOR INCREASING  
GROWTH AND MILK PRODUCTION***



**NATIONAL DAIRY DEVELOPMENT BOARD  
ANAND**

## INTRODUCTION

Low quality forages form the bulk of basal diet of ruminants in India. In addition, farmers feed their animals one or two locally available concentrate ingredients, depending upon the level of milk production, unmindful of animals' requirement. This type of diet is not always able to meet protein, energy, minerals and vitamins requirement of animals. As a result, animals either do not produce milk as per their genetic potential or else, the cost of milk production is high on account of imbalanced feeding.

Different feed ingredients are rich in different nutrients. In view of this, it was felt that if different grains, brans, protein meals/cakes, chunnies, agro-industrial by-products, minerals and vitamins are mixed in suitable proportion and this mixture is fed to animals along with the basal diet, nutrient requirement of animals can be met more judiciously. **This balanced mixture of concentrate ingredients, which varies in composition in accordance with the animal type, season, region etc., is called compound cattle feed.** Compound cattle feed could be in the form of mash, pellets, crumbles, cubes etc.

## MAIN INGREDIENTS OF CATTLE FEED

**Grains:** Maize, sorghum, wheat, rice, oats, barley, ragi, millets etc.

**Brans:** De-oiled rice bran, rice polish, wheat bran, maize bran etc.

**Protein meals/cakes:** Rapeseed meal/cake, soybean meal, cottonseed meal/cake (decorticated and un-decorticated), groundnut meal/cake, coconut meal/cake, palm kernel meal/cake, sesame cake, linseed cake, maize germ oil cake, maize gluten meal, sunflower meal, kardi (safflower) meal, guar meal etc.

**Chunnies:** Guar, tur, urd, moong, gram & chunnies of other locally available pulses.

**Agro-industrial by-products:** Molasses, babul chunni, tamarind seed powder, mango kernel extraction, *Prosopis juliflora* pods, tapioca waste etc.

**Minerals and vitamins:** Mineral mixture, calcite powder, common salt, di-calcium phosphate, vitamins A, D<sub>3</sub> & E.

## HOW COMPOUND CATTLE FEED IS MANUFACTURED

Different feed ingredients are taken in batch mixer from the raw material storage godown or storage silos, in accordance with the computerized least cost feed formulation. After mixing, all raw materials are ground to uniform particle size of 3 mm. Ground material is further mixed. Materials used in feed formulation in smaller quantities, such as vitamins, minerals, urea, calcite powder, common salt etc., are mixed in a ribbon mixer using proper diluents and stored in one of the storage bins.

Ground material and molasses are mixed simultaneously in twin-screw type mixer. Usually, molasses are added @ 10% in cattle feed, however, if the cost is very high, some sweetening agent could be used in place of molasses. Molassed feed is mixed with the dry steam before pelleting. Steam acts as conditioner to the feed and it helps killing some pathogens. Temperature of steamed feed is in the range of 75-80° C. Steamed feed is converted to pellets by passing it through cylindrical die and press roller. Usually, 8 mm die is used for production of pelleted feed. Pelleted feed, thus produced is passed through pellet cooler, before packing in HDPE or gunny bags.

## QUALITY CONTROL ASPECTS

Each raw material is tested in the laboratory, before it is finally accepted for production of cattle feed. All adulterated and infested raw materials are out rightly rejected, to ensure proper quality of finished product. Even, finished product is tested for quality, before dispatch. Finished product of improper quality is reprocessed.

## DIFFERENT TYPES OF COMPOUND CATTLE FEED

Since we have low, medium and high producing animals in different parts of the country, therefore, different types of feeds are produced by the feed milling plants. Variations in feed formulations are also necessary due to availability of different basal feeds in different seasons. Specifications for three different types of feeds recommended by the Feed and Fodder Group, constituted by the Department of Animal Husbandry & Dairying, MOA, GOI, are given below:

### SPECIFICATIONS FOR COMPOUND FEEDS ON DM BASIS

Characteristic	Requirement		
	Type 1	Type 2	Type 3
Crude protein (%), Min.	22	20	18
Crude fat (%), Min.	4.0	2.5	2.0
Crude fibre (%), Max.	10	12	15
Sand silica (%), Max.	3.0	4.0	5.0
Vitamin A (I.U./kg), Min.	7000	7000	7000
Vitamin D <sub>3</sub> (I.U./kg), Min.	1200	1200	1200
Vitamin E (I.U./kg), Min.	30	30	30
Common salt (%), Max.	1	1	1
Calcium (%), Min.	0.8	0.8	0.8
Phosphorus (%), Min.	0.5	0.5	0.5
Available phosphorus (%), Min.	0.25	0.25	0.25
Aflatoxin B <sub>1</sub> (ppb), Max.	50	50	50

## HOW MUCH COMPOUND CATTLE FEED TO BE FED

Cattle feed can be fed directly or by mixing it with chaffed dry/green fodder. Cattle feed need not to be cooked or pre-soaked before feeding. If compound feed is uniformly mixed with the forages and fed, results are better. Animals need to be fed compound feed as follows:

Compound cattle feed	Small breed cows (300-400 kg body wt.)	Large breed cows (400-500 kg body wt.)	Small breed buffaloes (300-400 kg body wt.)	Large breed buffaloes (400-600 kg body wt.)
For maintenance	2 kg	2.5-3.0 kg	2 kg	2.5-3.0 kg
For milk production (per litre)	0.4 kg	0.4 kg	0.5 kg	0.5 kg
For pregnancy	2 kg (last 2 months)	3 kg (last two months)	2 kg (last 2 months)	3 kg (last two months)

If 15-20 kg good quality cultivated green fodder is available for feeding the animals, then compound feed for body maintenance need not to be given.

## PRODUCTION OF COMPOUND CATTLE FEED



### SALIENT FEATURES OF COMPOUND CATTLE FEED

- Compound cattle feed contains grains, brans, cakes, mineral mixture, and vitamins, as source of protein, energy, minerals and vitamins.
- Compound cattle feed can be fed according to level of milk production.
- Composition of compound cattle feed can be adjusted, region wise and season wise, so as to meet requirement of animals.
- If fed along with the dry forages (straws), helps improving intake and utilization of straws, by way of associated effect.
- Compound cattle feed is a balanced and palatable source of nutrients for growing, adult, milk producing and pregnant animals.
- Its regular use helps in improving growth rate in young calves.
- As it contains desirable amount of minerals and vitamins along with other nutrients, its use helps improving reproductive efficiency.
- Calves born are healthy, if fed to pregnant animals.
- Through regular use of compound cattle feed in prescribed quantity, cost of milk production from dairy animals can be minimized and net profitability can be maximized.