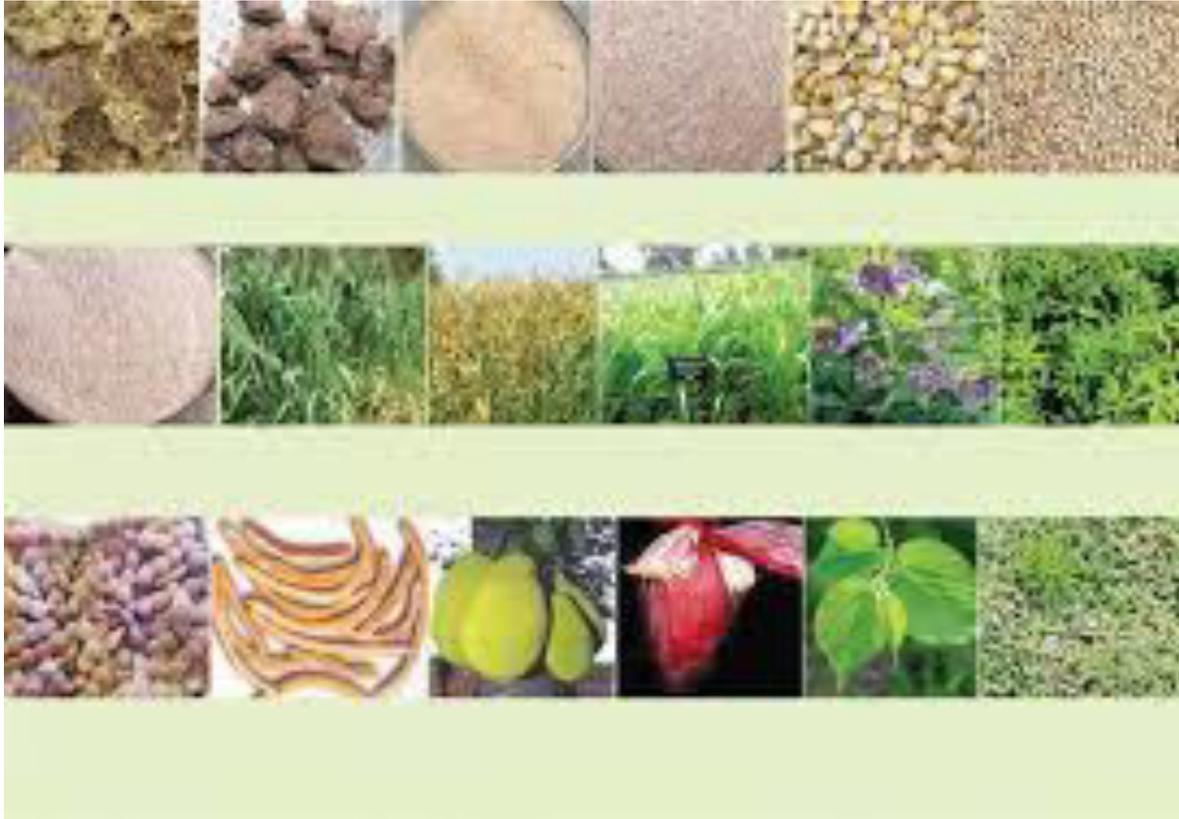


RATION BALANCING PROGRAMME



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Guidelines on Ration Balancing Programme

Foreword

- It has been observed that the dairy animals under field conditions are usually fed on one or two types of locally available feed ingredients. Animals on imbalanced diets not only produce less milk but the cost of milk production is also high. To maximize the profitability from dairying, it is essential that the animals are fed desired nutrients to produce milk as per their genetic potential through a least cost balanced ration. Besides improving genetic potential, optimum feeding of animals by advising milk producers through Ration Balancing Programme (RBP) is must. For successful implementation of RBP, it becomes imperative for the manpower to be properly trained in all the skills essential to enable them to implement the programme.

- These guidelines have been prepared primarily for End Implementing Agency (EIA) which would be implementing RBP. This would equip the manpower with sufficient technical knowledge to implement RBP in a comprehensive manner. It is expected that the technical and the operational guidelines for RBP will be a useful guide for the programme implementers and other people directly or indirectly associated with the programme. 3

1. Introduction: An overview

- Optimal feeding of dairy animals from available feed resources is important to achieve economic benefits of milk production, since cost of feeding alone accounts for 70% of total cost of milk production. It will not be possible to achieve higher bovine productivity by merely increasing the genetic potential of the dairy animals. It is also important to meet the nutritional needs of growing lactating animals in terms of energy, protein, minerals, vitamins, so that they can produce milk commensurate to their genetic potential and minimize overall cost of milk production.
- Farmers fed available resources to their animals with deficiency and/or excess of one or other nutrients in the ration resulting into inadequate feeding. This leads to imbalanced feeding which adversely affects the health and productivity of animals in various ways and also reduces the net daily income to milk producer from dairying. At times, overfeeding of animals can also raise the cost of milk production. Therefore, educating the farmers on proper use of available feed resources to meet the animal's nutrient requirement at low cost plays a key role to enhance milk production efficiency with better economic returns.
- Estimation of nutrient requirement of an animal depends on factors like animal type, class, age, pregnancy status, body weight, milk yield, milk fat, months of calving etc. Information on nutrients availability from the feeds and fodder being fed is required to assess the nutrients supply. Based on nutrient requirement and availability of feed resources, a least cost animal ration shall be formulated. This formulation is a complex exercise and is very difficult to work out manually. Therefore, National Dairy Development

Board (NDDDB) has developed the software, Information Network for Animal Productivity and Health (INAPH), which will formulate least cost balanced ration.

- Providing advices to farmers at their door step on large scale needs a proper delivery system like implementation of Ration Balancing Programme (RBP). These guidelines would help the users in understanding the technical and operational aspects of the programme.

What is ration?

Ration of an animal is the fixed amount of feed for one animal fed for a definite period, usually 24 hours.

Balanced Ration

Balanced ration is the ration that provides all the essential nutrients to the animal in such a proportion and amount that is required for the proper nourishment of animal in 24 hours. A balanced ration would provide protein, energy, minerals and vitamins from dry fodders, green fodders, concentrates, mineral supplements etc , in appropriate quantities to keep the animal in its form to perform best in respect of production and health.

Ration Balancing

Ration balancing is the process to balance the level of various nutrients of an animal, from the available feed resources, to meet its nutrient requirements for growth, body maintenance, pregnancy and milk production.

Disadvantages of imbalanced ration

Imbalanced ration leads to

- Shorter lactation length and increased inter calving period
- More metabolic diseases such as milk fever and ketosis
- Slow growth of young animals delaying the age of first calving
- Low productivity and shorter duration of productive life.
- More methane production per kg of milk yield.
- Low milk production, poor growth and reproduction

Ration Balancing Programme

Ration Balancing Programme (RBP) is an advisory programme, to educate the farmers on optimum feeding of animals to optimize milk production by efficient utilization of locally available feed resources at the possible least cost.

Advantages of Ration Balancing Programme

- Improves milk production efficiency
- Improvement in milk quality

- Possible reduction in daily feeding cost
- Helps in increasing net daily income to beneficiaries
- Improves general health of animals
- Improves reproduction efficiency of animals
- Better immune response, hence better resistance against diseases
- Improves growth in calves leading to early maturity
- Helps in reducing methane emission
- Efficient utilization of available feed resources

Green Fodder

Green fodder is an important and economic source of macro and micro nutrients for the livestock. The present availability of green fodder is about 500 million MT and deficit significantly. In India, few important fodder crops and their improved varieties being cultivated are given below along with their pictures.

Cereal fodder crops

The following are the characteristics of the cereal fodder crops.

- Rich in carbohydrates and energy
- Most suitable for silage making

- High seed production capacity

Perennial cultivated grasses

The following are the characteristics of the perennial cultivated grasses

- Rich in carbohydrates and energy
- Most suitable for silage making
- High seed production capacity

Cereal fodder crops

SI NO	CROP	PICTURE
01	<p>Maize</p> <ul style="list-style-type: none"> • Green fodder yield is 40 – 50 tons per hectare • High yielding varieties – J 1006 and African Tall 	
02	<p>Sorghum</p> <ul style="list-style-type: none"> • Single cut varieties yield is 35 – 50 tons per hectare • High yielding varieties – HC 308 and Pant Chari 5 • Multi-cut varieties yield is 75 – 90 tons per hectare • High yielding multi-cut varieties are SSG – 988, 855, CSH 20 MF 	

03	<p>Pearl millet</p> <ul style="list-style-type: none">• Green fodder yield is 35 – 45 tons per hectare• High yielding varieties – RBC 2, Rajko	
04	<p>Oats</p> <ul style="list-style-type: none">• Green fodder yield is 40 – 55 tons per hectare• High yielding varieties – Kent, UPO 212, JHO 822	

Perennial cultivated grasses

SI NO	CROP	PICTURE
01	<p>Hybrid Napier grass</p> <ul style="list-style-type: none">• High yielding perennial grass (200-400 tons per hectare)• Provide fodder from March to November in 5 to 6 cuttings• Vegetative propagated from rooted slips or stem cuttings• Important varieties are PBN 233, CO 3 & 4, IGFRI 6, 7 & 10	
02	<p>Guinea grass</p> <ul style="list-style-type: none">• High yielding with better fodder quality than Hybrid Napier• Tolerate partial shade and	

	<p>therefore, ideal for cultivation in gardens</p> <ul style="list-style-type: none"> • Propagated by seeds and root stocks • Important varieties are Co-2, Hamil, Macuenni, PGG – 19 & 518 	
03	<p>Para grass</p> <ul style="list-style-type: none"> • High yielding & multi-cut in nature • Suitable for marshy and water logged areas • Can be grown in saline and acidic conditions • Drought tolerate 	