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Estimation of feed resources in Puducherry region

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Abstract

The status of animal feed resource availability in Puducherry region comprising of Pondicherry, Karaikal, Yanam and Mahe has been assessed based on the secondary data. The estimation showed that there is huge deficit in feed resources and its increasing every year due to the shrinkage of cultivable lands. The milk production and productivity is mainly supported by the feed resource which is decreasing year by year. To sustain the livestock sector and increase the productivity the fodder resources has to be improved. The estimation proved the deficit of feed resource still exists facing a net deficit of 84 per cent of green fodder, 27 per cent of dry fodder and 90 per cent of concentrate feeds.

Keywords: Fodder, deficit, availability

Introduction

Livestock sector plays a critical role in the welfare of India's rural population. This sector is emerging as an important growth engine of the Indian economy. The contribution of livestock and fisheries sector to the total GDP was 3.6 per cent during 2010-11(NAS, 2012). In recent years, livestock output has grown at a rate of about 5 per cent a year, higher than the growth in agricultural sector. This enterprise provides a flow of essential food products, draught power, manure, employment, income, and export earnings. In India 14.9 million people are engaged in farming of animals in both rural and urban areas combined (DAHD, 2012). Livestock rearing has positive impact on equity in terms of income, employment and poverty reduction in rural areas (Thornton *et al*, 2002 and Birthal & Ali 2005).

The dairy animals provide daily income through sale of milk; small ruminants, pigs and backyard poultry are reared by the weaker section mainly for supplementing their income. (Ali, 2007).

Animal feed and fodder crops are those plants that are raised to feed livestock. At present, the country faces a net deficit of 61.1% green fodder, 21.9% dry crop residues and 64% concentrate feeds. The feed and fodder shortage has been identified as the single largest factor responsible for low productivity of livestock in India. Studies on assessment of feed resources availability and quantifying the surplus or deficit position have been hitherto mostly restricted to the national level. Crop residues

and their by-products constitute major ingredients (40%) in daily ration followed by green fodder (26%), concentrates (3%) and remaining comes through grazing. (Working Group Report, 2012)

Materials and methods

Traditionally the livestock feed resources comprise of crop residues, green fodders and concentrates, for which no information exists regarding their availability. Hence the availability of these feed resources is assessed indirectly based on land utilization pattern, crop production and estimated production of residues and by products using appropriate conversion factors / extraction ratios as given in the Table 1. The availability of crop residues, greens, grains, brans, chunies and oil cakes has been assessed based on the crop production and land utilization pattern data of Puducherry, collected from the directorate of economics and statistics, Government of Puducherry, for three consecutive years. The availability of green fodders has been estimated by multiplying the area under different categories as per the land utilization pattern with their average biomass production potential. The average production potential of fallow lands, permanent pastures, barren and cultivable wastes, miscellaneous tree crops has been assumed to be one ton on as such basis/hectare/year (ISPA1997). Further, it has been assumed has 4% of the gross cropped area is under cultivated fodder crops with an annual average field of 40 tons/hectare. Data were analyzed by using SPSS software version 16. Results were represented with the help of tables and different figures.

Table 1: Conversion factors of various crops.

Crop	Conversion factors			
	Crop residues	Oil Cakes	Grains	Brans & chunies
Paddy	1.30		0.02	0.08
Wheat	1.00		0.02	0.08
Jowar	2.50		0.05	
Bajra	2.50		0.05	
Maize	2.50		0.10	
Ragi	2.00		0.05	
Small millets	2.50		0.10	
Other cereals	2.00		0.10	
Pulses	1.70			0.03
Groundnut	2.00	0.7		
Sesamum		0.7		
Rape&mustard		0.7		
Linseed		0.7		
Niger		0.7		
Sunflower		0.7		
Safflower		0.7		
Soya bean		0.7		
Sugarcane	0.25			
Coconut		0.0625		
Cotton		0.0499		

Source: Ramachandra *et.,al* (2007)

In this present study, excluding poultry all other ruminant species are taken into consideration for calculating the requirements since the other species of animals constitute very small portion of the population. To overcome the limitation of assessing the requirements for different ruminant species, the potential availability of feed resources per Ruminant Livestock Unit (RLU) has been assessed to arrive at the status of the feed resources availability. The differences in the body weights and requirements of the cattle, buffalo, sheep and goats has been minimized by adopting the concept of standard RLU wherein appropriate weightage has been given for the different species. The standard RLU is represented by adult buffalo weighing 350 kg (Devendra 1997) and the conversion factors for adult cattle, sheep and goats has been taken as 0.8, 0.1 and 0.1 respectively. The conversion factors for buffaloes between 1 to 3 years and below one year were 0.5 and 0.17 while the corresponding values for the cattle were 0.8 and 0.34 respectively. The data on Livestock census 2007 was utilized to assess the feed requirements (Table.2).

Table 2: Calculation of Ruminant Livestock Unit based on Livestock population.

Sl.no	Type of cattle	Population census 2007	Conversion factor	RLU
Cross bred cattle				
	Male	90	0.8	**72.00**
	Female	42334	0.8	**33867.20**
	Young stock (less than 1 yrs)	22613	0.34	**7688.42**
	Young stock (1 – 3 yrs)	14025	0.8	**11220.00**
Indigenous cattle				
	Male	2759	0.8	**2207.20**
	Female	1886	0.8	**1508.80**
	Young stock (less than 1 yrs)	802	0.34	**272.68**
	Young stock (1 – 3 yrs)	687	0.8	**549.60**
Buffaloes				
	Male	77	1.0	**77.00**
	Female	2133	1.0	**2133.00**
	Young stock (less than 1 yrs)	585	0.17	**99.45**
	Young stock (1 – 3 yrs)	530	0.5	**265.00**
Goats				
	All goats	69567	0.1	**6956.70**
Sheep				
	All sheep	4694	0.1	**469.40**
Total				**67386.45**

Results and discussion

The most important factor for the dairy production is the feed and fodder which influences the productivity of animal in turn affecting production. Feed is necessary not only for the production but also for maintenance of the animals. Based on the formulation of Ration for the Ruminants by thumb Rule Method the Dry Matter requirement is calculated assuming RLU is 350 Kg, the requirement of green fodder, dry fodder and concentrate were 9 Kg, 4 Kg and 3 Kg respectively and converted into as fed basis.

Table 3: Estimates of Feed and fodder availability and deficit.

Sl.no	Feed resource	Requirement (in MT)	Availability (in MT)	Deficit (in MT)	Deficit (%)
1.	Green Fodder	221361.55	33837.00	187524.55	84.7
2.	Dry Fodder	98382.10	73059.50	25322.60	25.7
3.	Concentrate	73788.40	7185.60	66602.80	90.2

The current estimation clearly illustrates the large gap existing between requirement and availability of feed and fodder and fodder scarcity making it a challenging issue. Owing to severe deficit of feed and fodder, livestock sector is suffering from problem of underfeeding and malnutrition. The estimation proved the deficit of feed resource still exists facing a net deficit of 84 per cent of green fodder, 27 per cent of dry fodder and 90 per cent of concentrate feeds (Table.3). The situation has worsened since the estimation by Natchimuthu *et al.*, 2005 reported that there was a deficit of 7.7 % dry fodder, 70 % of green fodder and 81.9 % of concentrates. This decreasing trend of milk production in Puducherry is mainly due to decreasing area under fodder crops, gap between demand and supply of feed and fodder is widening year after year. As a result, cattle owners are facing problems of increasing cost of inputs which indirectly prevents the growth of livestock sector as a whole.

Land under fodder cultivation in Puducherry:

The latest season and crop report released by the Directorate of Economics and Statistics in South India revealed that the Total Cropped Area (TCA) in the U.T had dropped for the 6th consecutive year in 2010 – 2011 and was now 31,437 ha when compared to 31,910 ha in preceding year.

Drastic reduction in the net area sown in Puducherry fom 40,000 ha in 2000 to 18,565 in 2010-11. This decrease is because of fast urbanization and industrialization. The cultivable land in the region is showing a decreasing trend which is mainly due to the sale of cultivable lands to non-agricultural purposes. The land owners started selling their lands for higher price and invested in industries, since they do not consider farming as a profitable venture any more. The land used for fodder cultivation in the region was about 98 hectares (less than 4% of cropped area) with the total fodder growers of 278 (PONLAIT, 2012).

In addition there was a diversification of crops. Many land lords in rural and peri urban areas have changed their less economical and more labour intensive crops like paddy, sugar cane to *Casuarina* and Horticulture crops including coconut which are less labour intensive and require less supervision. The net result is that the area under food crops is drastically falling leading to decrease in paddy straw as well as hay (ground nut, pulses etc). This decrease in crop residues with concomitant decrease in fodder crops force the cattle owners especially the landless agricultural labour to depend upon purchased inputs. In the past the landless cattle owners used to send their animals for grazing and spend very little on cash inputs such as concentrates and paddy straw.

Conclusions

The production and productivity of the animals mainly depends on the feed and fodder resources. The increasing trend of the deficit in the availability of the feed and fodder in the region is a huge backset for the livestock sector. The scenario is being continuing for almost a decade which creates a hue and cry situation for the livestock owners. Increase in the cost of inputs due to scarcity of feed fodder resources is an added burden to the livestock rearing. This is the reason even milk co-

operative society in this region as stopped producing the compound feed. It has become one of the most important causes for the farmers to lose interest in their occupation. To sustain the livestock farming feed resource plays a major role. Lack of feed resource will surely favor the end of livestock farming in this region if the situation continues.

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