DAIRY DEVELOPMENT DEPARTMENT

ANNUAL PLAN 2022-23

PART A

PRODUCTION AND CONSERVATION OF FODDER IN FARMER'S FIELDS AND DAIRY CO-OPERATIVES

(Head of Account: 2404-00-102-77)

TOTAL PLAN OUTLAY: ₹. 760.00 LAKH

PART A: PLAN OUTLAY: ₹. 74.068 LAKH

INDEX

01. Introduction

Agriculture sector plays a strategic role in Kerala's economy. It has also contributed to a structural change in the economy. However, in recent years, the agriculture sector in Kerala has been facing challenges with respect to growth because of risks and uncertainties arising out of variability in climate, fluctuations in commodity prices and constraints in marketing the produce. The Gross State Value Added (GSVA) from agriculture declined from 12.37 per cent in 2013-14 to 9.44 per cent in 2020-21.

The Covid-19 pandemic in 2020-21 affected Kerala's agricultural sector in multiple ways. Fall of demand and disruption of supply chains resulting in major income losses for the farmers, lack of availability of workers especially migrant workers, affecting the functioning of a number of processing units in agriculture, income losses for agricultural institutions in the public sector, and the adverse impact on the export-oriented spices and the plantation crops of the global trade slowdown contributed to losses in the agricultural sector.

The all-India growth rate of agriculture and allied sectors has been fluctuating (Table.1). In 2020-21, growth in agriculture, forestry and fishing declined to 3.6 per cent from 4.3 per cent growth in 2019-20.

Table 1: Growth rate in GVA in agriculture and allied sectors in India, 2013-14 to 2020-21

Year	Growth rate per annum (%)
2013-14	5.6
2014-15	(-)0.2
2015-16	0.6
2016-17	6.8
2017-18	6.6
2018-19	2.6
2019-20	4.3
2020-21	3.6 (P)

Source: National Accounts Statistics, 2021
Note: (P) Provisional

The share of crops, livestock, forestry and fishing sectors in Gross Value Added (GVA) of the country has been declining continuously since 2013-14. However, in 2020-21, as per the provisional estimates of national income, the share has increased to 16.38 per cent (Table 2). When most sectors were under significant stress during the Covid-19 pandemic, the agriculture sector was somewhat insulated. This could be due to the timely exemption of farming

activities, uninterrupted harvesting, and smooth flow of commodities during the period.

The performance of the agriculture sector in the State showed an improvement in 2020-21 over 2019-20. According to data from the Directorate of Economics and Statistics (DES), year 2020-21 showed an increase in the share of agriculture and allied sectors in total GSVA (at constant 2011-12 prices) of the State. It increased from 8.38 per cent in 2019-20 to 9.44 per cent (Table 2). The contribution by crop sector also increased from 4.32 to 4.96 percent during the period.

Table 2: Share of agriculture and allied sectors in GVA/GSVA National and State level, constant prices 2011-12

Year	Share of Agriculture and allied sectors in Total GVA (India) (%)	Share of Agriculture and allied sectors in GSVA (Kerala) (%)
2013-14	17.8	12.37
2014-15	16.5	11.92
2015-16	15.4	10.74
2016-17	15.2	9.96
2017-18	15.1	9.61
2018-19	14.6.	9.03
2019-20	14.8	8.38 (P)
2020-21	16.38 (P)	9.44 (Q)

Source: National Accounts Statistics 2021, GoI; Directorate of Economics and Statistics, GoK
Note: (P) Provisional, (Q) Quick

Livestock sector is an important subsector of agriculture and plays a prominent role in the socio-economic development of the country. The sector plays a significant role in generating employment in rural areas, particularly among landless, small, and marginal farmers and women, besides providing nutritious food to millions of people.

About 20.5 million people in India depend upon livestock for their livelihood. The sector contributes 16 per cent of the income of small farm households as against an average of 14 per cent for all rural households and provides livelihoods to two-thirds of the rural community. It also provides employment to about 8.8 percent of the population in India. The percentage of area used for all types of livestock farming in India was 1.69 per cent. As per the estimates of National Accounts Statistics (NAS) 2020, the contribution of livestock in total agriculture and allied sector GVA (at constant prices) has increased from 28.63 per cent in 2018-19 to 29.35 per cent (2019-20). The contribution of the livestock sector was 4.35 per cent of total GVA in 2019-20.

Rural women play a significant role in animal rearing and are involved in operations such as, feeding, breeding, management, and health care. The livestock

sector has emerged as one which generates employment and income security to women through micro enterprises. Women constitute 71 per cent of the labour force in livestock farming. In dairying, 75 million women are engaged as against 15 million men, while in the case of small ruminants, the sharing of work with men is almost equal. The need for technology up gradation and skill enhancement through capacity building programmes are felt across the sector.

India's livestock sector is one of the largest in the world. As per the 20th Livestock Census (2019), the total livestock population in the country is 535.78 million showing an increase of 4.6 per cent over Livestock Census 2012. It includes 302.79 million bovine population (cattle, buffalo, mithun and yak), an increase of 0.93 per cent over the previous census. The total number of cattle in the country is 192.49 million in 2019, showing an increase of 0.8 per cent over the previous census.

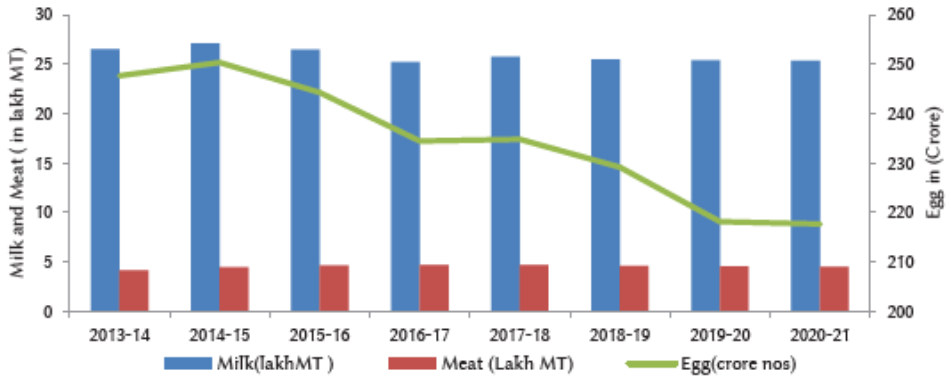
In Kerala, the livestock sector is prominent and is one of the fastest growing sectors in the rural economy. The share of livestock in Gross State Value Added (GSVA) at constant prices from agriculture sector shows an increase from 27.8 per cent in 2019-20 to 28.21 per cent in 2020-21. Its share in total GSVA of the State has also increased by 2.66 per cent in 2020-21.

As per the 20th Livestock Census, the livestock population in the State was 38.36 lakh. The reason for decline is the reduction in the population of other animals, especially domestic dogs, rabbits, donkeys, and elephants (which form the major share) by 14.69 percent. The poultry population is 298.18 lakh, which accounts for 3.5 per cent of total poultry population in the country. The sector registered 25 per cent increase over the previous census. The growth rate of poultry population in Kerala is higher than the growth rate recorded at the national level (16.81 per cent).

While considering the data on the GSVA in the livestock sector, the overall growth pattern in the last decade shows that there was period of growth between 2011-12 and 2014-15, and then a decline. In real terms, there was an absolute decline in the GSVA by ₹20,388 crore between 2014-15 and 2018-19. There was a moderate pickup of growth in the first year of the 13th Five Year Plan, but the heavy floods of 2018 and 2019 resulted in a sharp fall of GSVA in 2018-19 and 2019-20.

Milk production: India continues to be the largest milk producing country with 20.17 per cent share in total milk production in the world in 2019-20. At the national level, the milk production has increased from 18.78 crore tonnes in 2018-19to 19.84 crore tonnes in 2019-20 registering a growth of 5.64 per cent, sustaining the trend over the past three decades. The highest five milk producing States are Uttar Pradesh (16.06 per cent), Rajasthan (12.89 per cent), Madhya Pradesh (8.62 per cent), Gujarat (7.71 per cent), and Andhra Pradesh (7.69 per cent), which together contributes 52.96 per cent of total milk production in the country. Kerala ranks 14th position among the major milk producing states in India. The per capita availability of milk has been increasing in India over the years and is 406 gram per day in 2019-20. The highest per capita availability is in Punjab (1,221 gram per day) followed by Haryana (1,115 gram per day).

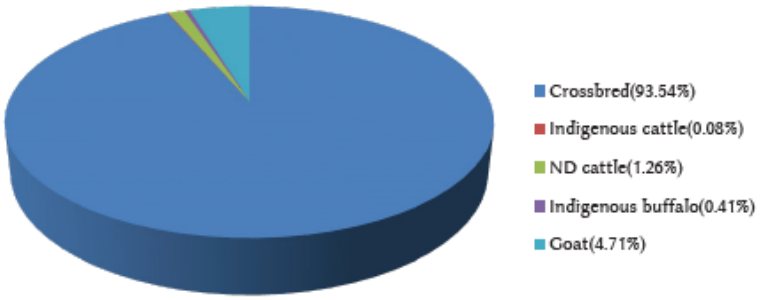
Production of milk, egg and meat from 2013-14 to 2020-21



The species wise milk production shows that nearly 35 per cent of total milk production is contributed by indigenous buffaloes followed by 28 per cent by cross bred cattle. The indigenous cattle contribute 10 per cent of the total milk production. Goat milk shares a contribution of 2.95 per cent in the total milk production across the country.

The total requirement of milk in Kerala in 2020-21 was 33.37 lakh MT, but the supply was only 25.34 lakh MT resulting in a deficiency of 8.03 lakh MT milk. This necessitated an import of 2.51 lakh MT. Out of 25.34 lakh MT of milk produced in the State, major share was produced by cross bred cows (93.54 per cent). Indigenous cows produced only 0.319 lakh MT of milk (1.26 per cent). The production of milk from goat was 1.19 lakh MT (4.71 per cent). The rest was contributed by non-descript cattle, indigenous buffalo and non-descript buffalo.

Species wise milk production in Kerala in 2020-21



Source: Animal Husbandry Department, GoK 2021

Even though the herd sizes are low, productivity of cattle in Kerala is higher than the national average. The average milk yield per animal in India for exotic or crossbred animal is 7.9 kg and for indigenous or non – descript animals is 3 kg per day. The corresponding figures for Kerala are 10.2 kg per day and 3 kg per day respectively. The productivity of 10.2 kg per day in Kerala for exotic/crossbred animals was the second highest among the Indian states after Punjab (13.4 kg per day). This advantage for Kerala was due to the high percentage of exotic/crossbred animals in the population compared to other states.

5.94 Lakh Metric Tonnes of Milk (16.27 Lakh Litre per Day) was procured through Dairy Co-operatives during the year 2016-17, whereas 7.12 lakh Metric Tonnes of Milk (19.5 lakh litres per day) is the corresponding figure for the year 2020-21. At the same time the milk procurement through Dairy Co-operatives of the state have marked a record figure during the year 2021-22. For the first time ever in the history of the state, the per day milk procurement through Dairy Co-operatives crossed 21 lakh litre per day during the Financial Year 2021-22 (Highest Recorded Procurement on December 2021 and it was 21.84 LLPD).This hike is a positive indicator as far as the Animal Husbandry and Dairy Development activities of the state is concerned and is a narration of the various development activities undertaken by the Government to nurture the Sector.

Fodder Production and Its Significance - Kerala produces only 60% of the roughages required for cattle in Kerala. One of the main constraints for increasing milk production is the shortage of quality fodder. Marginal and small farmers who are the major cattle owners of the state have limited space for fodder development. Whatever space available, the whole of which is mostly devoted to producing cash crops. Since fodder is not directly yielding any benefit, fodder cultivation takes a back seat. Such dairy farmers anyway need fodder to reduce their cost of production and thus would be eager to purchase fodder if readily available. Cows of Kerala are one of the high yielding animals of India. Lack of fodder and high cost of cattle feed leads to underfeeding of these animals resulting in suboptimal production of milk. Necessary steps needs to be taken for improving the fodder availability in the state and ensuring optimal feeding of these animals so that we can increase the productivity of these animals to their optimum potential.

The present cost of milk production is mainly driven by the cost of concentrates and external inputs for productivity. The farmer's expenditure on feeding of the productive animal is influenced by the difference of the selling price of milk with the cost of concentrate feed. This compels the farmers to adopt under feeding practices which lead to malnutrition resulting in a longer inter-calving period and reduction in the production potential of the crossbred animals.

A cost effective feeding practices for productive crossbred animal can be achieved by decreasing the dependence on external input i e., concentrates and increasing the internal input system through fodder production at farmer's level for nutrient availability & its balancing for optimum productivity by assisting farmers in adopting fodder cultivation in their own lands. This envisages focused attention on the special need to develop feed resources by improving availability of green fodder.

The project is intended to ensure the availability of fodder in farmer's field where the available land is utilized by adopting integrated cropping pattern. The cultivation can be pure crop or inter crop.

In the current scenario, where competing demands on land renders even expansion of food/cash crops a difficult proposition, the probability of increasing

area under fodder crops is very difficult. It is therefore imminent to adopt a multi-pronged strategy for adequate availability of fodder in order to provide a buffer to the farmer even in times of climatic variability. This strategy envisages supply of quality seeds, promoting production of fodder crops, extending fodder cultivation to currently fallow and unutilized lands, promotion of dual purpose varieties of crops which has the potential of meeting fodder requirements in season and off-season, promotion of non-traditional fodder, post-harvest technologies for preservation of fodder etc.

Besides, improving productivity in areas already under fodder cultivation, improving productivity of grazing and pasture lands, raising perennial fodder crops on field bunds and boundaries, peri-urban areas and exploiting unutilized and under-utilized fodder crops are also some of the promising options to enhance fodder availability. Plant Breeders in India have also identified a number of varieties/hybrids which could give a better quality and higher yield of crop residue without any compromise in grain yield.

Mechanization in the field of fodder development is a need of the hour. Farm mechanization has been helpful to bring about a significant improvement in agricultural productivity. Thus, there is strong need for mechanization of agricultural operations. The factors that justify the strengthening of farm mechanization in the country can be numerous. The timeliness of operations has assumed greater significance in obtaining optimal yields from different crops, which has been possible by way of mechanization. As production increases with mechanization of the farm operations, it creates a good scope for commercialization of fodder cultivation. Normally, there are good chances to reduce the cost of production if farm operations are mechanized as it saves labour, both human and bullock. In the absence of mechanization, the ever-increasing wage rate of human labour and cost of upkeep of draught animals will increase the cost of production much higher. Further, large scale production means less per unit cost on the farms. Farm machines have not only increased the mechanical advantage, but also helped to reduce drudgery while performing the different agricultural operations. The contributions of agricultural mechanization in various stages of crop production could be viewed as saving in seeds, saving in fertilizers, saving in time, reduction in labour, increasing in cropping intensity and higher productivity.

For the year 2022-23, as per the Kerala State Budget Provisions, it has been proposed to undertake fodder development activities for Rs 760 lakh in the state. The Department intends to take up Novel Fodder Development Plan and activities in the state. During 2022-23, under the Fodder Development Programme itself it is envisaged to cultivate perennial fodder in 2231 Ha of land. In Part A, the total allocation for the project includes 74.068 Lakhs only.

02. Objectives

- To introduce new scientific low cost feeding culture among Dairy farmers.
- To uplift the sustainability and reliability in dairying by reducing the feeding cost by 30%

- Providing irrigation assistance and mechanization of fodder cultivation activities.
- To improve the general health of the milch animal and the quality of milk produced.
- To ensure the availability of green fodder throughout the season by assisting the farmers by providing planting materials and cultivation assistance.
- To generate employment and income to the producers by sale of fodder.
- To enhance the capacity of farmers for adoption of fodder production technology through field level training and demonstrations.
- To establish 07 number of DCS based SHG/Women Groups/Other recognized Groups for fodder production and marketing.
- To assist farmers for undertaking Hi-Tech Fodder Development Programme like Hydroponic Fodder Production Units (suitable for 2 cows to 10 cows)

03. Financial Outlay

SL NO.	SCHEME COMPONENTS	UNITS	2022-23				
			NO OF UNITS	UNIT COST (Rs)	UNIT SUBSIDY (Rs)	TOTAL COST (Lakhs)	TOTAL SUBSIDY (Lakhs)
COMPONENTS UNDER 2404-00-102-77-34 - OC-3 OTHER ITEMS							
1	**Transportation cost**	Number	14	Lumpsum		2.71	2.71
2	**Fodder seminar & Fodder day celebration at the District level & State Level**	Number	16	Lumpsum		5.00	5.00
3	**Irrigation Assistance**	Number	32	20000	10000	6.40	3.20
4	**Irrigation Assistance for Fodder Plots above 1 acre**	Number	28	50000	25000	14.00	7.00
5	**Mechanization& Modernization of fodder cultivation**	Number	31	20000	10000	6.20	3.10
6	**Assistance for Fodder cultivation and marketing by SHG / DCS / Women Groups**	Number	7	100000	75000	7.00	5.25
7	**Assistance for Compact / Mini / Low Cost Hydroponic Fodder Cultivaton**	Number	5	Lumpsum		11.00	5.31
8	**Cultivation of Fodder trees including live fencing**	Number	50000	5	5	2.50	2.50
9	**Assistance to State Fodder Farm, Valiyathura, Tvm**	Number	1	1000000	1000000	10.00	10.00
SUB TOTAL : 2404-00-102-77-34-OC-3 OTHER ITEMS						**64.808**	**44.068**
10	**2404-00-102-77-04 TE (1) TOUR TA**	Number	25	Lump sum	Lump sum	15.00	15.00
11	**2404-00-102-77-05 OE-4 OTHER ITEMS**	Number	25	Lump sum	Lump sum	5.00	5.00
12	**2404-00-102-77-45-POL**	Number	25	Lump sum	Lump sum	10.00	10.00
GRAND TOTAL : 2404-00-102-77						**94.808**	**74.068**

Savings in any one Scheme Component shall be utilized for meeting the expenditure pertaining to any other Scheme Component defined in this Scheme

04. Scheme Proper

04.01. Transportation Cost – Plan Assistance - ₹. 2.71 Lakhs

An amount of Rs**. 2.71 Lakh** has been kept apart to meet the transportation cost of fodder, planting materials and seeds within the district / inter-district.

04.02. Fodder Seminar & 'Fodder Day' Celebrations (Plan Assistance - ₹. 5.00 Lakhs)

It is proposed to conduct district level Fodder Seminar in all the 14 districts along with the celebration of 'Fodder Day' on a predetermined date involving the farmers, officials of the various departments, dairy co-operatives, representatives of the dairy industry and experts / scientists from universities etc. Discussions on topics of relevance to the current situation in the field of fodder production will be made. Exhibits of relevance to fodder production will be displayed in the event. Short duration fodder crop seeds like maize, jower, cowpea, fodder trees etc will be distributed to farmers on the 'Fodder day' celebration in each district. Best sustaining farmers in fodder cultivation will be honoured during the function. A sum of Rs. 5.00 Lakh is provided for the 'Fodder day' celebrations in State level and district level with fodder exhibitions.

04.03. Irrigation Assistance (Plan Assistance - ₹. 3.20 Lakhs)

This Scheme envisages providing irrigation assistance for existing fodder plots having source of irrigation. Pump sets, storage tanks, connecting hose, sprinkler system, drip system etc. can be established under this scheme. Assistance may be given for Rain water harvesting purpose also. The Scheme is for those beneficiaries having fodder plots with more than 50 cents area.

Priority for Selection:

- *Those farmers who pouring milk to Dairy Co-operative Societies*
- *Preference to those Dairy Farmers who have rearing more cattles*
- Priority for those farmers who have submitted full estimate i.e. an amount of more than Rs.20,000/

Subsidy component will be limited to 50 % of the total cost or a maximum of Rs. 10,000/- to each unit. In case of savings in the

allotted fund to districts / DESU, more number of beneficiaries shall be assisted.

04.03.01. Financial Outlay

FINANCIAL OUTLAY - IRRIGATION ASSISTANCE						
TOTAL UNITS	UNIT COST			COST FOR TOTAL UNITS		
	TOTAL	SUBSIDY	BENEF. CONT	TOTAL COST	SUBSIDY	BEN. CONTR
	Rs	Rs	Rs	Rs in Lakh	Rs in Lakh	Rs in Lakh
32	20000	10000	10000	6.40	3.20	3.20

04.04. Irrigation Assistance of Fodder Plots above 1 Acre (Plan Outlay – ₹. 7.00 lakh)

This Scheme component envisages providing irrigation assistance for existing fodder plots having source of irrigation. Pump sets, storage tanks, connecting hose, sprinkler system, drip system etc. can be established under this scheme. Assistance may be given for rain water harvesting purpose also. Beneficiaries shall be elite and Progressive farmers/JLG/SHG/NGOs/Other Institutions who cultivate fodder for more than 1 acre.

Priority for Selection:

- *Those farmers who pouring milk to Dairy Co-operative Societies*
- *Preference to those Dairy Farmers who are rearing more than 5 cattle*
- *For JLG/SHG/NGOs/Other Institutions: (The groups have to submit the registration Certificates mandatory)*
  Preference to those groups whose members are already rearing cattle and pouring milk in the Dairy Co-operatives
- *Priority for those farmers who have submitted full estimate ie an amount of more than Rs.50,000/-*

Subsidy component will be limited to 50 % of the total cost or a maximum of Rs. 25,000/- to each unit. In case of savings in the allotted fund to districts / DESU, more number of beneficiaries shall be assisted.

FINANCIAL OUTLAY - IRRIGATION ASSISTANCE						
TOTAL UNITS	UNIT COST			COST FOR TOTAL UNITS		
	TOTAL	SUBSIDY	BENEF. CONT	TOTAL COST	SUBSIDY	BEN. CONTR
	Rs	Rs	Rs	Rs in Lakh	Rs in Lakh	Rs in Lakh
28	50,000	25,000	25,000	14.00	7.00	7.00

Implementation

A beneficiary committee comprising of Dairy Extension Officer (or Dairy Farm Instructor as deputed by DEO), selected President and Secretary of the DCS and selected beneficiary shall be responsible of purchase of the items. The DCS may advance the amount incurred for purchase of Equipment's / implements. The beneficiary shall execute an agreement in stamp paper (valued as per existing government norms) that the assisted plot and implements purchased shall be maintained in good condition for a minimum period of 3 years. As there is no financial commitment from the part of the DCS, the ownership, maintenance and upkeep of the equipment / implements purchased shall be vested with the beneficiary

Registration Fees – Rs 170 / beneficiary

04.05. Mechanization & Modernization of Fodder Cultivation

(Plan outlay – ₹ 3.10 lakh)

The economic viability of a dairy unit largely depends on the availability of fodder grass. Better resource management and farm mechanization have led to an increase in the fodder yield, despite the challenges posed by adverse climate, soil and water salinity. Mechanization will encourage dairy farmers to take up fodder production on commercial basis.

It includes providing machineries like tillers, harvester, chaff cutter, agricultural implements etc. This will help in reducing the labour cost and thereby make fodder cultivation economically viable occupation to those having sufficient land. Use of chaff cutters will prevent wastage of fodder and improve its intake and thus help in easy assimilation of the nutrients.

Priority for selection:

- *Those farmers who pouring milk to Dairy Co-operative Societies*
- *Preference to those Dairy Farmers who have rearing more cattles*
- *Priority to farmers who have fodder plot size of more than 50 cents either as own land/lease land*
- *For JLG/SHG/NGOs/Other Institutions: (The groups have to submit the registration Certificates mandatory) Preference to those groups whose members are already rearing cattle and pouring milk in the Dairy Co-operatives*

- *Priority for those farmers who have submitted full estimate ie an amount of more than Rs.20,000/-*

The project envisages providing financial assistance for the purchase of machinery based on the requirement of the beneficiary. ***50 % of the cost of the machinery or Rs 10000/- whichever is less will be provided as assistance. In case of savings in the allotted fund to districts / DESU, more number of beneficiaries shall be assisted.***

Registration Fees – Rs 170 per beneficiary



FINANCIAL OUTLAY - MODERNIZATION & MECHANIZATION OF FODDER CULTIVATION						
TOTAL UNITS	UNIT COST			COST FOR TOTAL UNITS		
	TOTAL	SUBSIDY	BENEF. CONT	TOTAL COST	SUBSIDY	BEN. CONTR
	Rs	Rs	Rs	Rs in Lakh	Rs in Lakh	Rs in Lakh
31	20,000	10,000	10,000	6.20	3.10	3.10

04.06. Scheme for Fodder Cultivation & Marketing by SHG / DCS / JLG / Other Registered Groups (Plan Outlay – ₹ 5.25 lakh)

04.06.01. Introduction

The non-availability of land for fodder cultivation discourages many farmers from taking up dairying. If fodder is made available at cost on a regular basis many of these farmers will take up Dairying or increase the number of animals reared which would boost up the milk production of the state. There are many SHG / DCS / JLG/ OTHER REGISTERED GROUPS within the area of operation of a Dairy Cooperative who is willing to cultivate, collect and market fodder to the needy farmers at a cost. These SHG / DCS / JLG / OTHER REGISTERED GROUPS can be assisted to cultivate fodder in their own or leased land and also collect the natural grass and other crop residues available in the locality, chaff it and pack in gunny bags and bring it to the DCS where the needy farmers can purchase it .

04.06.02. The scheme

The scheme envisages assisting the SHG / DCS / JLG / OTHER REGISTERED GROUPS under the supervision of the Dairy Co-operative to take

up fodder cultivation and marketing to the needy farmers. Groups consisting of two or more individuals can be formed within the area of a DCS. The group members may take up fodder cultivation in their own land or in leased land. The minimum area to be cultivated should be one acre. They may also collect locally available natural grass or other crop residues like plantain leaves and stem, coconut leaves after removing the spine and other stem and leaves (tapioca, pineapple etc.) which can be chaffed and mixed with the cultivated grass. A chaff cutter will also be provided to them. A shed to store the collected and chaffed fodder and a platform balance to weigh the fodder will also be provided. The chaffed fodder will be packed in gunny bags and carried to the DCS where dairy farmers come twice daily to pour milk. Those farmers who are in need of the fodder can purchase the fodder at a cost decided by the SHG / DCS / JLG / OTHER REGISTERED GROUPS based on the demand in the area.

Assistance for One Group (One Acre of Land)

Sl. NO	Particulars	Cost	subsidy
1.	Cost of cultivation of fodder in One acre of land	20000	15000
2.	Chaff cutter , and electrical accessories	20000	15000
3.	Shed for storing Equipments, tools ,implements and fodder	20000	15000
4.	Weighing balance (platform type)	20000	15000
5.	Tools and implements for cultivation , harvesting , gunny bags for packing chaffed fodder etc.	20000	15000
	TOTAL	**1,00,000**	**75,000**

The estimated cost for establishing one unit is **Rs. 1,00,000/-** for which **Rs. 75,000/-** will be provided as subsidy for the year 2022-23. The remaining amount has to be channelized by the beneficiary group through own fund or bank loan. It is estimated that the group will be able to sell about 150 to 200 tons of fodder a year at an estimated cost of Rs. 3/Kg.

Registration Fees – Rs 180 per beneficiary

FINANCIAL OUTLAY - FODDER CULTIVATION AND MARKETING BY SHG/DCS/JLG						
TOTAL UNITS	***UNIT COST***			***COST FOR TOTAL UNITS***		
	TOTAL	***SUBSIDY***	***BENEF. CONT***	***TOTAL COST***	***SUBSIDY***	***BEN. CONTR***
	Rs	***Rs***	***Rs***	***Rs in Lakh***	***Rs in Lakh***	***Rs in Lakh***
7	***1,00,000***	***75,000***	***25,000***	***7.00***	***5.25***	***1.75***

04.07. Assistance for Mini/ Compact & Low Cost Hydroponic Fodder Units (Plan Outlay – ₹ 5.31 lakh)

04.07.01. Introduction

Kerala is considered as a state in India having highest cost of milk production. Studies have revealed that the cost of production of milk in Kerala is around Rs 33 per litre. This is mainly due to acute shortage of green fodder and crop residue, low productivity of animals, less availability of land, high labour cost etc. The high cost of production has made the dairying activity less profitable. The solution to solve this to adopt modern technologies for reducing the cost of milk production. Hydroponic fodder can be considered as one of the most suitable solution and most advanced technology available to solve the shortage of concentrates and fodder. It's now a worldwide accepted technology. Since majority of our dairy farmers belong to marginal group, MINI/COMPACT AND LOW COST HYDROPONIC FODDER MACHINES are most advisable to them. It's cost effective to the farmers also.

04.07.02. Objective

- To establish 5 No's of Mini Compact and Low Cost Hydroponic systems suitable for farmers rearing 2 to 8 milch animals
- To produce highly nutritious Hydroponic fodder required for 2 cows and their calves (45 kg – for 2 cows/day upto 180 kg of Hydroponic fodder – for 8 cows/day)
- To reduce the cost of milk production to Rs 12/litre
- To produce milk with 4.5 % Fat and 8.8 % SNF
- To reduce utilization of resources like land, water and labour

04.07.03. Need and Justification

Cattle rearing in the state are facing a lot of uphill challenges. The major constraints of this activity is the high cost of milk production due to dependency on the high cost concentrate feeds, lack of percapita availability of land for fodder cultivation, labour shortage etc. The concentrate feed cost is too high as Rs 1350 per bag of 50 Kg.

Since the labour cost is too high farmers are reluctant to provide sufficient food to animals. This causes under feeding of animals which in turn leads to loss in production potential and hence may lead to sterility. Undesirable quality of concentrate feeds may damage cattle health and also create health hazards to the consumers through its Aflatoxin content. The required quantity of minerals are not received through cattle feed. Lack of vitamins also leads to delayed pregnancy and even death, which results in decreased profitability to the farmer.

More over the concentrate feeds available in the markets are lacking sufficient energy required for milk production. Hydroponic fodder offers total solution to the above problem. It provides adequate energy, protein, fat, minerals and vitamins at a stretch in the form of fodder. MINI HYDROPONIC MACHINES will be most suitable for farmers rearing two milch animals. 18-20 kg of hydroponic fodder is sufficient for a milch animal which produces 15 litres of milk daily. It is assumed that I kg concentrate feed can be replaced by 5 kg of Hydroponic Fodder. It has to be supplemented with either 5 kg dry fodder or 10 kg green fodder to meet fibre requirements. Aflatoxin free milk can be produced by feeding hydroponic biscuits which is not at all possible when fed with concentrates. Moreover 0.3%

increase in fat and up to 0.4% increase in SNF also is noticed together with a 10% increase in milk production. While feeding with hydroponic fodder, the production cost of one litre of milk comes to around Rs 13 where as it is almost as high as Rs 33 per litre when fed with concentrates. The urea content in concentrate pellets also leads to infertility in animals. In short, safe organic milk can be produced by feeding hydroponic biscuits.

Registration Fees – Rs 200 per beneficiary


04.07.04. Beneficiaries

The beneficiaries of the scheme shall be 5 elite and progressive farmers of the state. 2 No. of famers who rear 2 cows, 2 no. of farmers who rear 5 cow and 1 no. of farmers who rear 8 cows will be assisted under the scheme.

Priority for Selection: Applicants shall be pouring milk to a Dairy Co-operative registered under the Dairy Development Department. He should have minimum 2 no's of Cattles

04.07.05. Unique Features

The unique features of proposed Compact, Low Cost Mini Hydroponic Systems are as follows

- Reduces the cost of milk production (up to 30%) and increases the profitability in cow rearing
- Optimum use of natural resources (only 200 litre of water is sufficient to produce 50 kg of hydroponic fodder)
- No need of inputs like soil, manure, fertilizer and labour which considerably reduces the cost of fodder production and hence the cost of milk production
- Wonderful production of biomass (I tonne fodder from one cent of land area daily) which minimize land requirement in cattle rearing.
- Feed supplements like mineral mixture, vitamin A supplement can be fully avoided
- Equipment is quite handy, less complicated, less running cost. It can be kept in kitchen and manufactures as plug & play model.

04.07.06. The Technology Of Hydroponic Fodder

The technology of HYDROPONIC FODDER is the most modern concept of fodder production. It is a process of germination of suitable grains or legumes under hydroponic principles i.e. cultivation without soil. In this process the seeds are allowed to grow under most favourable climate conditions such as humidity, temperature etc. for a particular period (normally up to 6 days)

In Compact/ Low Cost/ Mini Hydroponic units 200 litre of water is required to produce 45-50 kg fodder biscuits (germination is carried out at controlled temperature (18 degree Celsius) and humidity (50-100%) which avoids any chance of contamination. Seeds become young plants in seven days, regardless of the available soil and type of climate. A layer of succulent and fresh green forage (Mat / Biscuit) is obtained. It is sweet and devoid of any harmful microbes with high nutritive value and ready to be used as feed for animals. During germination process enzymes that metabolize the seeds' starch and protein reserves are triggered, converting them into basic nutrient elements (amino acids and sugars) and create new vegetable tissue rich in totally natural vitamins that are assimilated easily. A highly digestible natural food is obtained, which is expected to increase productivity, performance, and improve the general health of animals.

04.07.07. Technical Specification Of the MINI/COMPACT AND LOW COST HYDROPONIC SYSTEM

- Produces 30-45 kg of Hydroponic Fodder for 2 cow unit to 160-180 kg of Hydroponic Fodder for 8 cow unit
- Dimensions – [1-1.5 m long] X [1.5-2.0 m wide] X [2-2.5 m height]
- 1 Tray – 1.2 – 2 kg seed == 11-19 kg of Hydroponic Fodder (output)
- Temperature of inside the chamber will be 16-18 degree Celsius
- Power requirement – single phase and usage will be approximately less than 5 Units per day
- 200 litre of water is required daily including cleaning
- Flooring / Basement requirement – [1.5-2.0m] X [1.1-1.5 m] X [2.5-2.7 m]

04.07.08. The Process

The low cost hydroponic unit is designed with specifically designed fibre container with racks inside and also have temperature control facilities. The trays are placed in their racks. The temperature and humidly is controlled automatically. The seeds are grown in food grade specially designed plastic trays and the water is sprinkled as per requirement. No fertilizer, soil or other inputs will be provided for sprout and is allowed to grow aseptically. The entire unit is controlled automatically and the parameters can be monitored through displays.

Seeds used inside the machine can be maize, barley and wheat. The seeds are washed thoroughly and soaked in water for an overnight. 1.2 to 2.0 kg of seeds are to be placed in each tray. The trays are kept inside the machine and allowed to grow for seven days. Since both sides of the container can be opened, seeding can be done from one side and withdrawal from the other. The biomass will become 8 to

9 times and the same is removed from the tray and the highly nutrient entire mat is given to the animals. The process of seeding is continued everyday so that the continuous production is ensured. 18-20 kgs of hydroponic are required for a single milch animal with 15 litres per day capacity. Sprouted seedlings are more palatable and spouting enables all the nutrients in easily absorbable form. It is also rich in water content. The starch content in the fodder serves as reserved energy.

04.07.09. Nutrient Content Of Hydroponic Fodder

Hydroponic biscuits are enriched with the following nutrients

Crude Protein : 20.2 %
Crude Fibre : 11.3 %
Fat : 4.3 %
Starch : 15.4 %
Calcium : 0.15 %
Potassium : 0.7 %
Magnesium : 0.25 %
Phosphorous : 0.46 %
Sulphur : 0.28 %
Boron : 22 mg / Kg
Copper : 11 mg / Kg
Iron :160 mg / Kg
Vit A : 42.7 IU
Vit E : 62.4 IU
Metabolisable Energy : 13.5 Mega Joule per Kg

04.07.10.Hydroponic Feed Requirements For Animals

18-20 kgs of Hydroponic Fodder are sufficient to meet the nutritional requirements of milch cow yielding 15 litre of milk per day. Ten percent of increase in milk production and 14% increase in butter fat are noticed while feeding hydroponic biscuits.

04.07.11. Cost of Milk Production When Fed With Hydroponic Fodder

EXPENDITURE (PER DAY) – 2 cow unit	**Amount (Rs)**
cost of seed (1.2 kg /biscuit X Rs 30 / Kg X 6 biscuits)	216
cost of water (250 Ltr per 6 biscuits X 25 ps per litre)	62.5
cost of 10 kg fodder as supplement	30
cost of electricity (5 units per 6 biscuits X Rs 7 per unit)	35
cost of transportation of seed (Rs 5 X 1.2 Kg/biscuits X 6 biscuits)	36
TOTAL FEED COST (per day)	**379.5**
Feed Cost per litre of milk	**Rs 12.65 per litre**

04.07.12. Unit Cost

COMPACT/LOW COST/MINI HYDROPONIC FODDER UNITS (FOR CATERING FODDER NEEDS OF 2 - 8 MILCH ANIMALS)			
	2 MILCH COW	**5 MILCH COW**	**UPTO 8 ANIMALS**
PARTICULARS	**AMOUNT (Rs)**	**AMOUNT (Rs)**	**AMOUNT (Rs)**
COST OF HYDROPHONIC MACHINE (INCLUDING TRANSPORTATION, UNLOADING AND OTHER TRANSIT CHARGES)	90000	120000	150000
SEED COST FOR ONE MONTH AND TRANSPORTATION CHARGES	6000	12000	20000
MAINTANANCE, POWER AND SERVICE CHARGES	2500	5000	7500
INSURANCE CHARGE	5400	7200	9000
SHED CONSTRUCTION,PLATFORM CONSTRUCTION, SEED STORE FACILITIES, DRAINAGE FACILITIES ETC	25000	40000	50000
MISCELLENEOUS	4500	5000	5500
GRAND TOTAL	**133400**	**189200**	**242000**
SUBSIDY	**80040**	**113520**	**145200**
Subsidy rounded off to	**80000**	**113000**	**145000**

Savings in any one component shall be utilized for any other component in the scheme

04.07.13.Financial Outlay

ASSISTANCE FOR ESTABLISHING MINI COMPACT LOW COST TYPE HYDROPONIC SYSTEMS								
SI.NO	PARTICULARS	NO. OF UNITS	**FOR ONE MACHINE**			**FOR TOTAL HP MACHINES**		
			TOTAL COST	UNIT SUBSIDY	BEN. CONTR.	TOTAL COST	PLAN FUND	BEN. CONTR.
			Rs.	Rs.	Rs.	Rs. In Lakh	Rs. In Lakh	Rs. In Lakh
1	MINI HYDROPONIC SYSTEMS (FOR 2 COW UNIT)	2	133400	80000	53400	2.668	1.6	1.068
2	MINI HYDROPONIC SYSTEMS	2	189200	113000	76200	3.784	2.26	1.524

	(FOR 5 COW UNIT)							
3	MINI HYDROPONIC SYSTEMS (FOR 10 COW UNIT)	1	242000	145000	97000	2.42	1.45	0.97
GRAND TOTAL						**8.872**	**5.31**	**3.562**

04.07.14. Advantage of the Scheme

- Feed cost limited to Rs 12.65 per litre
- Feed supplements like minerals and vitamins can be avoided
- 10 % hike in milk production
- 0.3 % hike in fat and 0.4 % hike in SNF
- Machine can be operated in single phase
- 2 KV inverter is also supplied with the machine with 6 hour back up
- Provides all essential nutrients for animal producing 15 litre milk per day.

04.07.15. Implementation, Critical Evaluation and Monitoring

The Dairy Extension Officer shall be responsible of the block wise evaluation of the scheme. The Deputy Director shall be the authority for final approval of beneficiary and shall monitor the district wise progress of the scheme. The Director, Dairy Development shall monitor and evaluate the progress of state wise implementation of the programme.

Continuous evaluation and monitoring shall be done by a Technical committee consisting of Dairy Extension Officer of that unit, One Dairy Farm Instructor, President of the society, Secretary of the society and beneficiary of the scheme. They shall evaluate the improvement in quality and quantity of milk, general health condition of animal, mode of feeding, economics of feeding and performance of the machine.

04.08. Cultivation of Fodder Trees including Live Fencing

Plan Outlay – ₹. 2.5 Lakhs

Dairy farmers of Kerala find it difficult to cultivate sufficient fodder to feed their animals as the land holdings are small and pressure on the land from cash crops are high. They turn to other non-conventional feed stuff such as tree leaves and other crop residues to meet the requirement of roughage. Fodder trees such as Agathi, Subabul, Glyericidia, etc. are rich in crude protein and if fed regularly can help in reducing the cost of milk production. The project envisages promoting cultivation of Agathi / Subabul / Glyericidia for fodder in coastal areas, riverbanks and other available areas. The seedlings of Agathi / Subabul / Glyericidia shall be supplied to the farmers free of cost so as to encourage them to take up cultivation of fodder trees. Dairy cooperatives / SHG's / NGO's/JLG's/ Students Dairy Clubs shall produce seedlings using seeds obtained from KLDB, other fodder research

stations and approved fodder farms. Fodder trees suitable for coastal areas, river banks shall be made available for such areas. The Dairy development department shall provide Rs. 5.00 /seedling (including transportation) supplied to the farmers. 50,000 seedlings shall be planted/distributed to farmers on the proposed 'Fodder day' celebration of the year 2019-20. The Dairy Extension Officer shall maintain a list of beneficiaries.

04.09. Assistance to State Fodder Farm, Valiyathura

Plan Outlay – ₹.10.00 Lakhs

The State Fodder Farm under Dairy Development Department at Valiyathura, Trivandrum is producing fodder for supply to the dairy farmers in and around the city. The Farm also supplies root slips, stem cuttings for fodder propagation in addition to the sale of fodder. A new fodder training centre has been established at State Fodder Farm, Valiyathura. The treated water from the sewage treatment plant can be used for irrigating the fodder cultivated in the farm. Necessary infrastructure is to be created for upgrading the farm as **State Fodder Farm cum Fodder Training Centre**. The existing fodder cultivation is to be sustained for supplying fodder and planting material to farmers. It is proposed to set apart a portion of the outlay to meet the expenditures incidental to the activities of the farm, crop maintenance, fodder/ planting material, to dig a Bore well, purchase PVC storage tank, facilities for irrigation using treated water from Sewage treating plant, de-silting of canals, repairs and maintenance of buildings, fencings, transportation, purchase of farm equipment's and small implements, a Hydroponic machine for Demonstration purpose, etc. A new heifer park with 50 heifers already established at SFF, Valiyathura. Any development activity for the state fodder farm shall be undertaken under this scheme component. In case of components not detailed in this DPR, The Farm Superintendent shall submit a detailed proposal for final approval from the Director, DDD

Plan Outlay (Lump sum Amount) – Rs 10.00 lakh

05. Conclusion

The above schemes will help to nurture the fodder development activities of the state, will generate self-employment opportunities and will help to reduce the feed cost and thereby ensuring the socio-economic security of the farmers.

Director

ANNEXURE I

SCHEME AT A GLANCE

DAIRY DEVELOPMENT DEPARTMENT PRODUCTION AND CONSERVATION OF FODDER IN FARMERS FIELDS AND DAIRY CO-OPERATIVES : 2022-23							
SL NO.	SCHEME COMPONENTS	UNITS	2022-23				
			NO OF UNITS	UNIT COST (Rs)	UNIT SUBSIDY (Rs)	% SUBSIDY (%)	REGISTERATION FEES (Rs)
HOA : 2404-00-102-77-00-34-03-P-V							
1	Irrigation Assistance for Fodder Plots above 1 acre	No	28	50000	25000	50%	170
2	Mechanization& Modernization of fodder cultivation	No	31	20000	10000	50%	170
3	Assistance for Fodder cultivation and marketing by SHG / DCS / Women Groups	No	7	100000	75000	75%	180
4	Assistance for Compact / Mini / Low Cost Hydroponic Fodder Cultivation	No	5	Lump sum		60%	200

DAIRY DEVELOPMENT DEPARTMENT

ANNUAL PLAN 2022-23

PART B

PRODUCTION AND CONSERVATION OF FODDER IN FARMER'S FIELDS AND DAIRY CO-OPERATIVES

(Head of Account: 2404-00-102-77)

TOTAL PLAN OUTLAY: ₹. 760.00 LAKH

PART B: PLAN OUTLAY: ₹. 685.932 LAKH

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01. Introduction

Agriculture sector plays a strategic role in Kerala's economy. It has also contributed to a structural change in the economy. However, in recent years, the agriculture sector in Kerala has been facing challenges with respect to growth because of risks and uncertainties arising out of variability in climate, fluctuations in commodity prices and constraints in marketing the produce. The Gross State Value Added (GSVA) from agriculture declined from 12.37 per cent in 2013-14 to 9.44 per cent in 2020-21.

The Covid-19 pandemic in 2020-21 affected Kerala's agricultural sector in multiple ways. Fall of demand and disruption of supply chains resulting in major income losses for the farmers, lack of availability of workers especially migrant workers, affecting the functioning of a number of processing units in agriculture, income losses for agricultural institutions in the public sector, and the adverse impact on the export-oriented spices and the plantation crops of the global trade slowdown contributed to losses in the agricultural sector.

The all-India growth rate of agriculture and allied sectors has been fluctuating (Table.1). In 2020-21, growth in agriculture, forestry and fishing declined to 3.6 per cent from 4.3 per cent growth in 2019-20.

Table 1: Growth rate in GVA in agriculture and allied sectors in India, 2013-14 to 2020-21

Year	Growth rate per annum (%)
2013-14	5.6
2014-15	(-)0.2
2015-16	0.6
2016-17	6.8
2017-18	6.6
2018-19	2.6
2019-20	4.3
2020-21	3.6 (P)

Source: National Accounts Statistics, 2021
Note: (P) Provisional

The share of crops, livestock, forestry and fishing sectors in Gross Value Added (GVA) of the country has been declining continuously since 2013-14. However, in 2020-21, as per the provisional estimates of national income, the share has increased to 16.38 per cent (Table 2). When most sectors were under significant stress during the Covid-19 pandemic, the agriculture sector was somewhat insulated. This could be due to the timely exemption of farming activities, uninterrupted harvesting, and smooth flow of commodities during the period.

The performance of the agriculture sector in the State showed an improvement in 2020-21 over 2019-20. According to data from the Directorate of Economics and Statistics (DES), year 2020-21 showed an increase in the share of agriculture and allied sectors in total GSVA (at constant 2011-12 prices) of the State. It increased from 8.38 per cent in 2019-20 to 9.44 per cent (Table 2). The contribution by crop sector also increased from 4.32 to 4.96 percent during the period.

Table 2: Share of agriculture and allied sectors in GVA/GSVA National and State level, constant prices 2011-12

Year	Share of Agriculture and allied sectors in Total GVA (India) (%)	Share of Agriculture and allied sectors in GSVA (Kerala) (%)
2013-14	17.8	12.37
2014-15	16.5	11.92
2015-16	15.4	10.74
2016-17	15.2	9.96
2017-18	15.1	9.61
2018-19	14.6.	9.03
2019-20	14.8	8.38 (P)
2020-21	16.38 (P)	9.44 (Q)

Source: National Accounts Statistics 2021, GoI; Directorate of Economics and Statistics, GoK
Note: (P) Provisional, (Q) Quick

Livestock sector is an important subsector of agriculture and plays a prominent role in the socio-economic development of the country. The sector plays a significant role in generating employment in rural areas, particularly among landless, small, and marginal farmers and women, besides providing nutritious food to millions of people.

About 20.5 million people in India depend upon livestock for their livelihood. The sector contributes 16 per cent of the income of small farm households as against an average of 14 per cent for all rural households and provides livelihoods to two-thirds of the rural community. It also provides employment to about 8.8 percent of the population in India. The percentage of area used for all types of livestock farming in India was 1.69 per cent. As per the estimates of National Accounts Statistics (NAS) 2020, the contribution of livestock in total agriculture and allied sector GVA (at constant prices) has increased from 28.63 per cent in 2018-19 to 29.35 per cent (2019-20). The contribution of the livestock sector was 4.35 per cent of total GVA in 2019-20.

Rural women play a significant role in animal rearing and are involved in operations such as, feeding, breeding, management, and health care. The livestock sector has emerged as one which generates employment and income security to women through micro enterprises. Women constitute 71 per cent of the labour force in livestock farming. In dairying, 75 million women are engaged as against 15 million men, while in the case of small ruminants, the sharing of work with men is almost equal. The

need for technology up gradation and skill enhancement through capacity building programmes are felt across the sector.

India's livestock sector is one of the largest in the world. As per the 20th Livestock Census (2019), the total livestock population in the country is 535.78 million showing an increase of 4.6 per cent over Livestock Census 2012. It includes 302.79 million bovine population (cattle, buffalo, mithun and yak), an increase of 0.93 per cent over the previous census. The total number of cattle in the country is 192.49 million in 2019, showing an increase of 0.8 per cent over the previous census.

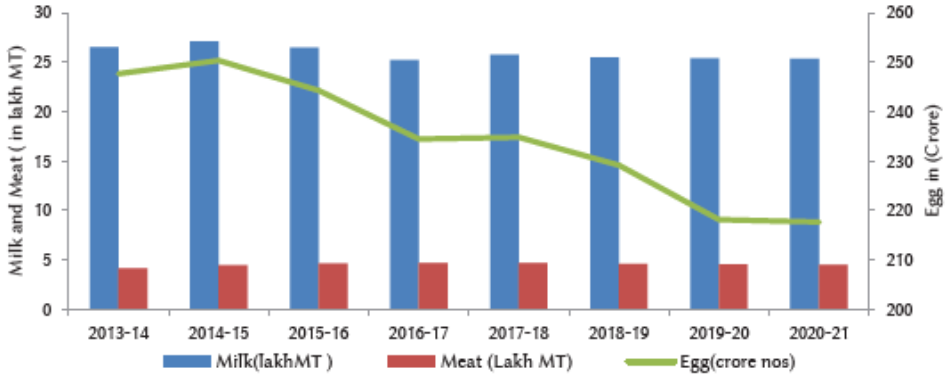
In Kerala, the livestock sector is prominent and is one of the fastest growing sectors in the rural economy. The share of livestock in Gross State Value Added (GSVA) at constant prices from agriculture sector shows an increase from 27.8 per cent in 2019-20 to 28.21 per cent in 2020-21. Its share in total GSVA of the State has also increased by 2.66 per cent in 2020-21.

As per the 20th Livestock Census, the livestock population in the State was 38.36 lakh. The reason for decline is the reduction in the population of other animals, especially domestic dogs, rabbits, donkeys, and elephants (which form the major share) by 14.69 percent. The poultry population is 298.18 lakh, which accounts for 3.5 per cent of total poultry population in the country. The sector registered 25 per cent increase over the previous census. The growth rate of poultry population in Kerala is higher than the growth rate recorded at the national level (16.81 per cent).

While considering the data on the GSVA in the livestock sector, the overall growth pattern in the last decade shows that there was period of growth between 2011-12 and 2014-15, and then a decline. In real terms, there was an absolute decline in the GSVA by ₹20,388 crore between 2014-15 and 2018-19. There was a moderate pickup of growth in the first year of the 13th Five Year Plan, but the heavy floods of 2018 and 2019 resulted in a sharp fall of GSVA in 2018-19 and 2019-20.

Milk production: India continues to be the largest milk producing country with 20.17 per cent share in total milk production in the world in 2019-20. At the national level, the milk production has increased from 18.78 crore tonnes in 2018-19to 19.84 crore tonnes in 2019-20 registering a growth of 5.64 per cent, sustaining the trend over the past three decades. The highest five milk producing States are Uttar Pradesh (16.06 per cent), Rajasthan (12.89 per cent), Madhya Pradesh (8.62 per cent), Gujarat (7.71 per cent), and Andhra Pradesh (7.69 per cent), which together contributes 52.96 per cent of total milk production in the country. Kerala ranks 14th position among the major milk producing states in India. The per capita availability of milk has been increasing in India over the years and is 406 gram per day in 2019-20. The highest per capita availability is in Punjab (1,221 gram per day) followed by Haryana (1,115 gram per day).

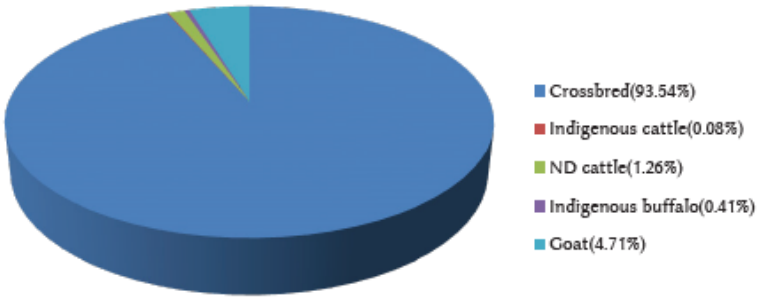
Production of milk, egg and meat from 2013-14 to 2020-21



The species wise milk production shows that nearly 35 per cent of total milk production is contributed by indigenous buffaloes followed by 28 per cent by cross bred cattle. The indigenous cattle contribute 10 per cent of the total milk production. Goat milk shares a contribution of 2.95 per cent in the total milk production across the country.

The total requirement of milk in Kerala in 2020-21 was 33.37 lakh MT, but the supply was only 25.34 lakh MT resulting in a deficiency of 8.03 lakh MT milk. This necessitated an import of 2.51 lakh MT. Out of 25.34 lakh MT of milk produced in the State, major share was produced by cross bred cows (93.54 per cent). Indigenous cows produced only 0.319 lakh MT of milk (1.26 per cent). The production of milk from goat was 1.19 lakh MT (4.71 per cent). The rest was contributed by non-descript cattle, indigenous buffalo and non-descript buffalo.

Species wise milk production in Kerala in 2020-21



Source: Animal Husbandry Department, GoK 2021

Even though the herd sizes are low, productivity of cattle in Kerala is higher than the national average. The average milk yield per animal in India for exotic or crossbred animal is 7.9 kg and for indigenous or non – descript animals is 3 kg per day. The corresponding figures for Kerala are 10.2 kg per day and 3 kg per day respectively. The productivity of 10.2 kg per day in Kerala for exotic/crossbred animals was the second highest among the Indian states after Punjab (13.4 kg per day). This advantage for Kerala was due to the high percentage of exotic/crossbred animals in the population compared to other states.

5.94 Lakh Metric Tonnes of Milk (16.27 Lakh Litre per Day) was procured through Dairy Co-operatives during the year 2016-17, whereas 7.12 lakh Metric Tonnes of Milk (19.5 lakh litres per day) is the corresponding figure for the year 2020-21. At the same time the milk procurement through Dairy Co-operatives of the state have marked a record figure during the year 2021-22. For the first time ever in the history of the state, the per day milk procurement through Dairy Co-operatives crossed 21 lakh litre per day during the Financial Year 2021-22 (Highest Recorded Procurement on December 2021 and it was 21.84 LLPD).This hike is a positive indicator as far as the Animal Husbandry and Dairy Development activities of the state is concerned and is a narration of the various development activities undertaken by the Government to nurture the Sector.

Fodder Production and Its Significance - Kerala produces only 60% of the roughages required for cattle in Kerala. One of the main constraints for increasing milk production is the shortage of quality fodder. Marginal and small farmers who are the major cattle owners of the state have limited space for fodder development. Whatever space available, the whole of which is mostly devoted to producing cash crops. Since fodder is not directly yielding any benefit, fodder cultivation takes a back seat. Such dairy farmers anyway need fodder to reduce their cost of production and thus would be eager to purchase fodder if readily available. Cows of Kerala are one of the high yielding animals of India. Lack of fodder and high cost of cattle feed leads to underfeeding of these animals resulting in suboptimal production of milk. Necessary steps needs to be taken for improving the fodder availability in the state and ensuring optimal feeding of these animals so that we can increase the productivity of these animals to their optimum potential.

The present cost of milk production is mainly driven by the cost of concentrates and external inputs for productivity. The farmer's expenditure on feeding of the productive animal is influenced by the difference of the selling price of milk with the cost of concentrate feed. This compels the farmers to adopt under feeding practices which lead to malnutrition resulting in a longer inter-calving period and reduction in the production potential of the crossbred animals.

A cost effective feeding practices for productive crossbred animal can be achieved by decreasing the dependence on external input i e., concentrates and increasing the internal input system through fodder production at farmer's level for nutrient availability & its balancing for optimum productivity by assisting farmers in adopting fodder cultivation in their own lands. This envisages focused attention on the special need to develop feed resources by improving availability of green fodder.

The project is intended to ensure the availability of fodder in farmer's field where the available land is utilized by adopting integrated cropping pattern. The cultivation can be pure crop or inter crop.

In the current scenario, where competing demands on land renders even expansion of food/cash crops a difficult proposition, the probability of increasing area under fodder crops is very difficult. It is therefore imminent to adopt a multi-pronged strategy for adequate availability of fodder in order to provide a buffer to the farmer

even in times of climatic variability. This strategy envisages supply of quality seeds, promoting production of fodder crops, extending fodder cultivation to currently fallow and unutilized lands, promotion of dual purpose varieties of crops which has the potential of meeting fodder requirements in season and off-season, promotion of non-traditional fodder, post-harvest technologies for preservation of fodder etc.

Besides, improving productivity in areas already under fodder cultivation, improving productivity of grazing and pasture lands, raising perennial fodder crops on field bunds and boundaries, peri-urban areas and exploiting unutilized and under-utilized fodder crops are also some of the promising options to enhance fodder availability. Plant Breeders in India have also identified a number of varieties/hybrids which could give a better quality and higher yield of crop residue without any compromise in grain yield.

Mechanization in the field of fodder development is a need of the hour. Farm mechanization has been helpful to bring about a significant improvement in agricultural productivity. Thus, there is strong need for mechanization of agricultural operations. The factors that justify the strengthening of farm mechanization in the country can be numerous. The timeliness of operations has assumed greater significance in obtaining optimal yields from different crops, which has been possible by way of mechanization. As production increases with mechanization of the farm operations, it creates a good scope for commercialization of fodder cultivation. Normally, there are good chances to reduce the cost of production if farm operations are mechanized as it saves labour, both human and bullock. In the absence of mechanization, the ever-increasing wage rate of human labour and cost of upkeep of draught animals will increase the cost of production much higher. Further, large scale production means less per unit cost on the farms. Farm machines have not only increased the mechanical advantage, but also helped to reduce drudgery while performing the different agricultural operations. The contributions of agricultural mechanization in various stages of crop production could be viewed as saving in seeds, saving in fertilizers, saving in time, reduction in labour, increasing in cropping intensity and higher productivity.

For the year 2022-23, as per the Kerala State Budget Provisions, it has been proposed to undertake fodder development activities for Rs 760 lakh in the state. The Department intends to take up Novel Fodder Development Plan and activities in the state. In tune with the Plan fund provisions and Plan write up approved by GOK, 12 Scheme components are on-going in nature during the year 2022-23. The Administrative sanction has already issued by the Director for Part A, for an amount of Rs.74.068 Lakhs as per proceedings no. DDDKER/1453/2022-D3

During 2022-23, under the Fodder Development Programme itself it is envisaged to cultivate perennial fodder in 2231 Ha of land. 05 Schemes proposed to be implemented during the year 2022-23 are of ***schemes with Modification.*** Hence proposals for 05 modified schemes for the year 2022-23 with a Total Plan Outlay of Rs. 685.932 Lakh is submitted for working group approval.

02. Objectives

- To cultivate perennial green fodder (CO-3/ CO-4/ CO-5 / Super Napier) crops in 2231 Hectares of land.
- To introduce new scientific low cost feeding culture among Dairy farmers.
- To uplift the sustainability and reliability in dairying by reducing the feeding cost by 30%
- To improve the general health of the milch animal and the quality of milk produced.
- To ensure the availability of green fodder throughout the season by assisting the farmers by providing planting materials and cultivation assistance.
- To generate employment and income to the producers by sale of fodder.
- To enhance the capacity of farmers for adoption of fodder production technology through field level training and demonstrations.
- To encourage Massive/Comprehensive Fodder Cultivation Programme in Barren / Unutilized land in selected zones covering 51 Ha of Land.
- To encourage the maize cultivation in 45 Ha of land

03. Financial Outlay

SL NO.	SCHEME COMPONENTS	UNITS	2022-23 (PROPOSED)				
			NO OF UNITS	UNIT COST (Rs)	UNIT SUBSIDY (Rs)	TOTAL COST (Lakhs)	TOTAL SUBSIDY (Lakhs)
COMPONENTS UNDER 2404-00-102-77-34 - OC-3 OTHER ITEMS							
1	Fodder cultivation - 20 cents & above (Ha)	Ha	1980	62000	24250	1,227.60	480.15
2	Fodder cultivation - Below 20 cents (Ha)		200	10500	10500	21.00	21.00
3	Dairy Promoters incentive (Incentive @ Rs 8000 /Month for 10 months)	Number	162	80000	80000	129.60	129.60
4	Scheme for Maize cultivation	Ha	45	47160	15785	21.22	7.10
5	Pilot Scheme for Comprehensive and Massive Fodder Cultivation in Barren and Unutilised lands of selected Panchayats	Ha	51	157120	94272	80.13	48.08
GRAND TOTAL: 2404-00-102-77-34-OC-3 OTHER ITEMS						**1479.553**	**685.932**

Savings in any one Scheme Component shall be utilized for meeting the expenditure pertaining to any other Scheme Component defined in this Scheme

04. Scheme Proper

04.01. Perennial Fodder Cultivation – 20 Cents & Above

PLAN OUTLAY - Rs. 480.15 Lakh

The Scheme envisages assisting cultivation of perennial fodder in a total area of ***1980 Ha*** of land providing planting material free of cost and assistance for cultivation to farmers. Application for assistance under the scheme will be invited from the dairy farmers for cultivation of fodder in suitable land with perennial irrigation source through a prescribed performas. Necessary awareness in the proposed programme will be given through Dairy Extension Service Unit, Dairy Co-operative Societies, Local Self Government Institutions, All India Radio, Farm Information Bureau and local dailies. The farmers rearing animals and willing to

spare land or arrange land on lease for fodder production will be selected for the programme. The minimum area of cultivation for which assistance given will be limited to 20 cents and multiple of 10 cents.

Each district will have to select mandatory beneficiaries under the category

a. Plots with minimum 50 cents and
b. Plots with minimum 100 cents.

There will be no upper limitation of area for availing assistance and the beneficiaries will be eligible for assistance by covering at least an area of 20 cents. The selected beneficiary will have to register their name at the Dairy Extension Service Unit of the concerned block by ***paying registration fees of Rs.11/- per cent of land***. The sanctioning authority will be the District Officer. The registration fees will be remitted by the farmer through Online after the verification by the Dairy Extension Officer.

The cultivation will be done by using stem cuttings/rooted slips of Hybrid Napier (CO-3 / CO-4 / CO-5/ Super Napier) which will be made available to the farmers free of cost. The distribution of slips and seeds to the selected/ registered beneficiaries will be ensured by the Deputy Director of the concerned districts from the Government farms, approved fodder nurseries maintained by the Dairy Co-operative Societies/ NGO's /Individuals approved by the Director based on recommendation of the Deputy Director.

Priority for Selection:

- *Those farmers who pouring milk to dairy co-operatives*
- *Those farmers having more cattles*
- *Priority to applicants (farmers/entrepreneurs) having more than 50 cents of land*

In order to get maximum growth and production, the requirement of stem cuttings per hectare of land is estimated as 15000. The subsidy given to the beneficiaries for cultivation of fodder under the scheme will be Rs. 13,750/ Hectare of land in addition to the root slips supplied free of cost. Value of root slips supplied /hectare of land is estimated to be Rs. 10,500/- . Therefore the total subsidy for cultivating fodder in one hectare of land comes to Rs 24,250/-.

Unit Cost (for 1 Ha fodder cultivation)

SI.NO	PARTICULARS	AMOUNT (in Rs)
1	Cost of slips (15000 /Ha) 15000 X 0.70 Ps/slips	10,500
2	Land preparation - 25 man days X Rs.500 /man day	12,500
3	Basal Manuring	16,500

4	Planting - 20 man days X Rs.500 /man day	10,000
5	Weeding/irrigation - 10 man days X Rs.500 /man day	5,000
6	Top dressing	6,000
7	Miscellaneous Expenses	1,500
Total Cost per Ha		**62,000**
Subsidy @ Rs 24,250/ Ha		
(Cultivation assistance @ Rs 55/- cent & slip cost @ Rs 0.70 Ps / slip); Slips are distributed free of cost.		

Financial Outlay

Area (in Ha)	**Subsidy per Ha (Rs.)**	**Total Plan Assistance (Rs. in Lakhs)**
1980	**24250**	**480.15**

The mandatory fodder plots with minimum area of cultivation (50 cents and 100 cents), that are to be cultivated and maintained at each district is as below.

SI.NO	**DISTRICT**	**TARGET -NO. OF FOODER PLOTS**	
		Min 50 Cents	**Min 100 Cents**
1	Thiruvananthapuram	10	5
2	Kollam	8	4
3	Pathanamthitta	6	3
4	Alappuzha	9	5
5	Kottayam	10	5
6	Idukki	10	5
7	Ernakulam	10	5
8	Thrissur	15	7
9	Palakkad	15	7
10	Malappuram	6	4
11	Kozhikode	10	5
12	Wayanad	8	4
13	Kannur	8	4
14	Kasargod	6	4

04.02. Perennial Fodder Cultivation – Below 20 Cents

(Plan Assistance - ₹. 21.00 Lakhs)

The Scheme envisages assisting cultivation of perennial fodder in a total of 200 hectares of land providing planting material free of cost by the Dairy Development Department. There will be ***no registration fees*** for non-subsidy plots. Application for assistance under the scheme will be invited from the dairy farmers for cultivation of fodder in suitable land with perennial irrigation source by the Dairy Extension Officer concerned. Necessary advertisement will be given through Dairy Extension Service Unit, Dairy Co-operative Societies, and Local self-government institutions, All India Radio, Farm Information Bureau and local dailies.

For non-subsidy plots the cultivation will be done by using seeds of guinea / Congo signal /stem cuttings/rooted slips of Hybrid Napier . The distribution of slips and seeds to the selected beneficiaries will be ensured by the Deputy Director of the concerned districts from the Government farms, approved fodder nurseries maintained by the Dairy Co-operative Societies/ NGO's /Individuals approved by the Director based on recommendation of the Deputy Director . Planting materials – Slips/ Seeds which will be supplied free of cost to farmers.

Financial Outlay

Area (in Ha)	Subsidy per Ha (Rs.)	Total Plan Assistance (Rs. in Lakhs)
200	10500	21.000

04.03. Dairy Promoter Incentive

(Plan Outlay – ₹. 129.60 lakh)

To familiarize the cultivation of green fodder, commercial fodder production, cultivation of fodder in cultivable waste land under irrigated condition, to get maximum yield by doing timely operations, dairy farmers need constant timely interaction and persuasion to establish the crop, in addition to the available amenities. Hence it is proposed to utilize the service of trained matriculate in the field, one in each block on incentive basis, designated as **Dairy Promoters**. The incentives will be paid at a rate of Rs**. 8000/ month**. They will be given 2 days training on fodder development activities which are required for field and they shall be engaged for 10 months.

Rs. 8000 x 10 months x 162 blocks = Rs. 129.60 Lakh

04.04. Scheme for Maize Cultivation for Grain Production

(Plan Outlay – Rs 7.10 lakhs)

04.04.01. Introduction

Maize is one of the important coarse cereal crops grown in different agro-climatic conditions. It is being used for manufacturing lot of industrial products. In addition it is used as an important feed and fodder for animals. Maize is rich source of starch, proteins, fat and minerals. Maize is a major component of cattle feed mixture providing the much needed carbohydrate in the animal ration. At present the feed companies like Kerala Feeds, Milma feeds and feed factories run by Dairy co-operatives are procuring Maize from Northern States incurring heavy expenditure. Quite often they face difficulties in procuring Maize due to seasonal fluctuation and non-availability. If Maize is cultivated in the state on a large scale the seeds can be made available to Kerala Feeds/Milma feeds/Dairy co-operatives on a buy back arrangement and the Stover (crop residue) can be fed to cattle as dry roughage.

04.04.02. The Scheme

The scheme envisages cultivating Maize as a pure crop by selected farmers who have sufficient land / are willing to cultivate in leased land. ***The minimum area to be cultivated is 25 cents***. The scheme will be implemented in those districts which have proximity to the Feed factories and have the suitable Agro-climatic conditions favouring maize cultivation.

The beneficiary selection may be done at the district level. Priority should be given to the land near the Feed Factories. Application for the scheme will be invited in a prescribed Performa. On receipt of application the implementing officer and subordinates should verify the applications and the sanctioning authority will be the District officer. In case of the excess production of maize, the selected beneficiary will sign an agreement that they will give the maize seed produced to the Feed factories on the rate fixed by the Board of Feed factories. In the event of the price of Maize grains provided by Feed factories is lower or Feed factories are not in a position to collect the Maize grains , the farmer will be free to sell it as directed by the Dairy Development Department . Since Maize is not commonly cultivated for grain purpose in Kerala, the selected beneficiaries will be given training on package of practices of Maize crop for grain production. Also the implementing officers will be given a chance to visit the fodder farms in other states, mainly Maize grown for grain purposes.

Priorities for Selection:

- Those farmers who are pouring milk to DCS
- Priority to farmers who have plot size of more than 50 cents
- Priority for JLG's/SHG's/DCS/NGOs : For these groups submission of registration certificates are mandatory & preference to those groups whose members are already rearing cattles & pouring milk to DCS . Also to those

groups who have own/lease land of minimum 1 Acre can be given priority under this scheme.

04.04.03. Financial outlay

Component	Area	Unit Seed rate	Seed Cost per Kg	Total Plan Outlay
	Ha	Kg	Rs./Kg	Rs.
Maize Seed	45	40	79	1,42,200.00
Assistance to farmer per Ha @ Rs.12625/Ha	45			5,68,125.00
Grand Total				**7,10,325.00**

To get the maximum yield of maize, farmers will be given seeds by the Department from the certified agencies. In order to get maximum growth and production, the requirement of seed per hectare of land is estimated as 40 Kg. The assistance given to the beneficiaries for cultivation of Maize in one Ha of land will be Rs.12625 in addition to the seeds supplied free of cost. Value of seeds supplied /hectare of land is estimated to be Rs. 3160/- (40 Kg x Rs.79 /Kg of seed, the rate per kg seeds may change).

Therefore the total assistance for cultivating Maize in one hectare of land comes to Rs 15,785/-.

SI.NO	PARTICULARS	AMOUNT	SUBSIDY (Rs)
1	Cost of seeds (@40 Kg /Ha) X Rs.79/Kg)	3160	3,160.00
2	Cultivation expenses such as Land preparation , basal Manuring, fertilizers, planting , weeding pest control, irrigation, pesticides, top dressing, harvesting, rent for crusher, cost for drying the seed etc. Plus Implementation Charges	44,000.00	12,625.00
Total Assistance per Ha		**47,160.00**	**15,785.00**

The average yield per Ha of Maize is 2.3 tons of grains. In Kerala condition the yield may be slightly lesser and we may assume it to be 2 tones/Ha, which will result in 220 tons of seed which can be procured by feed factories. The seeds produced will be procured by Feed factories at a price fixed by the Board of the Feed factories.

The crop residue (Stover) can be sold to other farmers through the Dairy Co-operatives as dry roughage for which there is high demand and will be remunerative for the farmer cultivating maize.

A portion of maize cultivation 2022-23 (for seed purpose) can also be utilized as base seed for hydroponic units which have been assisted by Dairy Development Department and also for hydroponic units which are selected during the year 2022-23

04.04.04. Monitoring

The District Deputy Director under the guidelines issued then and there will monitor the implementation.

04.04.05. Conclusion

The scheme will help in addressing the shortage of dry matter required for cattle in the State as well as provide some quantity of raw material for feed manufacturing within the state itself.

If any savings is available in any component of the schemes, that amount will be utilized for purchase of seasonal fodder.

04.05. Comprehensive & Massive Fodder Cultivation in Barren & Unutilized Lands of Selected Areas

(Plan Outlay – ₹ 48.08 lakh)

04.05.01 Fodder Requirement and Availability

Total Female Cattle population in Kerala is 14 lakhs. The annual Dry Matter requirement for maintaining our herd is about 84 lakh kg per day. The Dry Matter Requirement is estimated to be 84 lakh kg per day of which 56 lakh kg per day has to be met from roughages. Considering an average DM content of 20 percent in fodder, the green fodder requirement per day is 0.28 lakh tonne per day or 102.2 LMT per year. Kerala is only 46 % self-sufficient as far as green fodder availability is concerned (40 LMT availability as against the requirement of 87 LMT)

On account of the above the area to be made available under fodder cultivation is around 64,000 Ha (Hybrid Napier) whereas the availability is only around 30,000 Ha.

04.05.02 Need for a pioneering fodder plan for the state.

The profitability of dairy farmers is deeply hindered by the high production cost. A limiting factor in this regard is high dependence on concentrate / compound feed due to non-availability of adequate fodder especially green grass. The farmers of Kerala are mainly marginal in nature. The limitation in land availability, availability of high yielding varieties of fodder, resistance of farmers to take up fodder development activities, inadequate mechanization activities, inadequate fodder marketing facilities, lack of proper facilities for fodder processing activities are some factors to be redressed for establishing a new fodder development culture in the state.

The fodder availability in the state is sufficient enough to meet on an average 36 % of the requirement. In order to narrow the gap, innovative and novel approaches have to be initiated. As a part of the same, intensive fodder cultivation activities has to be taken up by the department. Fodder cultivation has to be taken up in available barren lands that too in an intensive and aggressive manner. The project implemented during the year 2017-18 to 2020-21 for undertaking comprehensive fodder development in barren land was a huge success.

04.05.03. Objectives of the Scheme

The scheme is aimed at

- Undertaking intensive fodder cultivation programme in selected zone of the state where barren / unutilized land is available for fodder cultivation.
- Ensuring fodder cultivation in **51** Ha of barren land available in the selected areas by integrating and ensuring the participation of Department, LSGD, Dairy Co-operative Societies, PSU's, progressive farmers etc.
- Ensuring **8,670** MT of additional green fodder per annum.
- Developing sustainable and model fodder development programme in selected areas. Integration of mechanization activities to be ensured
- Narrowing the gap between fodder requirement and availability of the state
- Developing sustainable, effective and profitable fodder cultivation models so as to encourage individuals,JLG, SHG, Govt agencies to take up fodder development activities
- Utilizing cultivable forest lands for fodder cultivation

04.05.04 Scheme Proper

It is proposed that the comprehensive and massive fodder production scheme be implemented in selected areas of the state. The selected beneficiary (individuals /JLG groups / DCS / NGO / Charitable organizations etc.) will have to establish fodder cultivation in minimum 1 hectare of barren cultivable land under its geographical premises. Minimum unit plot size shall be 1 acre. There will not be any upper limit for unit plot size or number of units permissible for a particular beneficiary including individual / organization / institution.

Registration Fees – Rs 180 per beneficiary

The implementation of the scheme involves the following stages

1. **Ensuring state wide publicity for the project**
2. **Preliminary awareness programme for District Level Officers**
3. **Inviting applications**
4. **District Level Selection of beneficiary**

After getting the consent from the concerned beneficiary, the Dairy Extension Officers of each DESU shall submit an application in prescribed format with proper recommendations including consent of the concerned beneficiary / institution, board decisions of the selected DCS coming under the area of operation of the DESU to the concerned Deputy Director of the district. The Deputy Director shall scrutinize the applications received from various DESU coming under the district. The Deputy Director shall be assisted by the Assistant Directors of the district for selecting the organization / Institution from among the various applications. The Deputy Director shall be the authority responsible for final selection of beneficiary in a particular district. The district selection shall be based on the target allotted from the Directorate.

The following criteria shall be adhered to while ranking / selecting the beneficiary.

- *Availability of barren cultivable land in the selected area / Zone*
- *Priority of ownership of barren land in the order of Govt owned, PSU Owned, LSGD owned, Charitable organizations, progressive farmers, other individuals etc*
- *Availability of land on lease.*
- *Source and availability of water and electricity for irrigation purpose*

- *Availability and concurrence of a potential DCS coming under the DESU which is willing to take up the project.*

The present status of available fodder shall not be criteria for selection of beneficiary rather the potential of the area and the gap in fodder and the possibilities to make use of the available barren land will be the criteria.

5. **Training programme for the representatives of selected beneficiary**
   Training for selected beneficiaries shall be carried out at district level. Training shall be arranged with the technical support from Dairy Training Centre of the Department
6. **Land preparation and other preliminary activities pertaining to selected beneficiary / beneficiary Institution / Organization.**
   Mechanized land preparation activities shall be followed (like use of Renovators, Ploughing machineries, weeding techniques etc.)
7. **Mechanized Fodder Cultivation activities**
8. **Harvesting of fodder**
9. **Marketing of fodder (with linkage to DCS to the maximum extent possible)**
10. **Release of financial assistance to the beneficiary**
11. **Monitoring of the scheme**
12. **State wide documentation**

04.05.05 TECHNICAL AND FINANCIAL PARAMETERS / OUTLAY

Technical cum Financial Parameters

- Min unit / Plot Size – 1 acre
- Max permissible units - No limit
- Type of fodder to be cultivated - High yielding variety of Hybrid Napier
- Ploughing by cultivator – Rs 6000 per hectare
- Ploughing by Rotovator – 2 times for 1 acre (1 hour per acre) @ Rs 800/hr.

  i.e. Rs 4000/- per hectare

Fertilizer Application – Preliminary

- Basal dose Manuring after initial Ploughing by Rotovator
- Urea - 87.5 kg / ha
- Potash - 50 kg / ha
- Rock phosphate - 250 kg / ha
- Cow dung - 2000 kg / ha @ Rs 2.5 per kg

Fertilizer Application - After each cutting

- Urea application - 20 Kg / Ha
- Hand picking / clearing of land – 4 man days per ha
- Cost of fodder slip –15,000 / Ha @ Rs 0.70 per slip
- No. of slips required per Ha - 15,000 per Ha
- Planting Charges – 10 man days per Ha @ Rs 800 per man day
- Irrigation Charges - Rs 30,000 per Ha
- Top Dressing Charges – Rs 3000/Ha
- Harvesting Charges - Rs 5000/Ha

(Including loading and unloading of fodder to the vehicle)

- No. of cutting expected per year - 7
- Transportation Charges (Lump sum) - Rs 20,000 per Ha
- Provisions for Cost Of Implements - Rs 20,000 (Lump sum)
  Weighing Machine and Other Unforeseen Expenditure
- Selling price of fodder - Rs 3.0 per Kg

Note:

If DCS is linked to this scheme, then the DCS can engage supervisory staff for the overall monitoring and implementation of the project (No plan fund will be provided for this). The Project may be loan linked if possible. DCS can avail eligible loan from banks

04.05.06 FINANCIAL OUTLAY

COST BREAK UP (1 HA)		
SI.NO	**PARTICULARS**	**TOTAL CHARGE PER ANNUM (Rs)**
1	**RENT FOR LEASE LAND**	9000
2	**LAND PREPARATION CHARGES** (PRELIMINARY PLOUGHING BY CULTIVATOR + PLOUGHING BY ROTOVATOR+AND PICKING / CLEARING OF LAND / INTERWEEDING)	13200
3	**COST OF SLIP**	10500
4	**FERTILIZER APPLICATION** (BASAL DOSE MANURING + MANURING AFTER EACH HARVESTING + TOP DRESSING)	12120
5	**LABOUR CHARGES** (PLANTING COST+HARVESTING CHARGES)	43000
6	**TRANSPORTATION CHARGES**	20000
7	**IRRIGATION CHARGES** (INCLUDING ELECTRICITY CHARGES) - CAPITAL + SPRINGLER AND ACCESSORIES + PIPE FITTINGS AND ACCESSORIES	30000
8	**COST OF IMPLEMENTS, WEIGHING MACHINE AND OTHER UNFORSEEN EXPENDTURE**	20000
GRAND TOTAL		**157820**

Savings in any component can be utilized for meeting the expenditure pertaining to any other sub component listed above.

DAIRY DEVELOPMENT DEPARTMENT COMPREHENSIVE SCHEME FOR MASSIVE FODDER PRODUCTION IN SELECTED PANCHAYATS FINANCIAL ANALYSIS	
PARTICULARS	**YEAR : 2022-23**
Expenditure	
LSGD CONTRIBUTION-MNREGS	-
DEPT SUBSIDY	94,272
BEN. CONTRIBUTION	63,548

GRAND TOTAL COST (1)	**1,57,820**
Revenue	
YIELD PER HECTRE - 160 TONNES PER ANNUM (@Rs 3.0 per KG) **(2)**	**4,80,000**
ESTIMATED PROFIT	**3,22,180**

FINANCIAL ABSTRACT

YEAR	UNIT COST (PER HA) (in Lakhs)			TOTAL COST - FOR 51 Ha (in Lakhs)		
	COST PER HA.	DCS/BENIFICARY CONTRIBUTION	PLAN ASSISTANCE	TOTAL COST	DCS/BENIFICARY CONTRIBUTION	PLAN ASSISTANCE
2022-23	1.58	0.64	0.94	80.49	32.41	48.08

04.05.07. IMPLEMENTATION AND MONITORING

The Block Level Officer (Dairy Extension Officer / Sr. Dairy Extension Officer) shall be the implementing officer of this scheme component. The Implementing officer shall be assisted by concerned Dairy Farm Instructors and Dairy Promoters.

Monitoring of the District level programme shall be the responsibility of the District Deputy Director. The District officer shall be assisted by The Assistant Directors of the District (Technical Assistant & Quality Control Officer). The District Deputy Director shall report periodically the progress of the scheme component to the Directorate.

The Director, Dairy Development shall monitor the state wide progress of the scheme component. The Joint Director (Planning), The Deputy Director (Planning) and the officers of Project Cell shall assist the Director for making periodic assessment regarding the progress of this scheme component.

04.05.08 CALENDAR OF ACTIVITIES

CALENDER OF ACTIVITIES		
SI.NO	**ACTIVITY**	**PERIOD**
1	Administrative Sanction Orders.	before 25.05.2022
3	Propaganda for the programme	before 01.06.2022
4	Selection of beneficiaries	before 15.06.2022
5	Training at District Level	before 05.07.2022
6	Land Preparation activities at selected	before 20.08.2022

	plots	
7	Fodder Cultivation activities	Aug, 2022 – Oct, 2022
8	Project Evaluation	before 15.11.2022
9	Release of Plan Assistance	before 15.12.2022
10	Documentation of the Programme	before 05.01.2023
11	State Level Evaluation	before 25.01.2023

04.05.09. EXPECTED OUTCOME

- The project is in tune with the state and central policies in regard to utilisation of barren land available in the state by way of encouraging fodder cultivation.
- The project will result in establishing a model fodder development programme for the state so as to utilize the barren land
- Profitable dairying activity will be ensured by way of reduced cost of production
- An additional 51 Ha of land will be brought under fodder cultivation
- Additional fodder production of 8670 MT per annum will be ensured
- Additional employment generation of 1750 Man days per annum.
- Ensures diversification of DCS activity and taking up farmer centric activity.
- Additional revenue generation avenue for the DCS
- Ensures health benefit for cattle by way of more ensured availability of green fodder

05. Conclusion

The above schemes will help to nurture the fodder development activities of the state, will generate self-employment opportunities and will help to reduce the feed cost and thereby ensuring the socio-economic security of the farmers.

Director

ANNEXURE I

SCHEME AT A GLANCE

DAIRY DEVELOPMENT DEPARTMENT PRODUCTION AND CONSERVATION OF FODDER IN FARMERS FIELDS AND DAIRY CO-OPERATIVES : 2022-23							
SL NO.	SCHEME COMPONENTS	UNITS	2022-23				
			NO OF UNITS	UNIT COST (Rs)	UNIT SUBSIDY (Rs)	% SUBSIDY (%)	REGISTERATION FEES (Rs)
HOA : 2404-00-102-77-00-34-03-P-V							
1	Fodder cultivation - 20 cents & above (Ha)	Ha	1980	62000	24250	39%	11/Cent
2	Fodder cultivation - Below 20 cents (Ha)	Ha	200	10500	10500	100%	-
3	Dairy Promoters incentive (Incentive @ Rs 8000 /Month for 10 months)	Number	162	80000	80000	100%	-
4	Scheme for Maize cultivation	Ha	45	47160	15785	33%	
5	Pilot Scheme for Comprehensive and Massive Fodder Cultivation in Barren and Unutilised lands of selected Panchayats	Ha	51	157820	94272	60%	180