



DAIRY DEVELOPMENT DEPARTMENT

ANNUAL PLAN 2015-16



SCHEMES UNDER

**RURAL DAIRY EXTENSION & ADVISORY SERVICES
SREP PROJECT – 2015-16**

Total Cost : Rs 58.8 lakh

Total Plan Outlay : Rs 45.00 Lakhs

HEAD OF ACCOUNT : 2404-00-102-96-34-00

INTRODUCTION

The Indian dairy industry has taken rapid strides during the past two decades. The milk production has registered a quantum jump from about 17 million tonnes in 1950 to 122 million tonnes in 2011. The quantity of milk handled by the organised sector has gone up to 81 million litres per day as against approximately 6 million litres per day during the 70s. Increasing urbanisation, general health awareness and growing purchasing power of middle- class have led to the rapid changes in consumption pattern for dairy products all over the country. There is growing demand for safe, nutritious, and health-promoting convenience milk products calling for value addition, product diversification and complete quality assurance. This emerging scenario has necessitated the realignment of the priorities and fine focusing of research agenda in the form of revised perspective plan through a fresh look at strengths, weaknesses, threats and opportunities that dairy sector offers. An important role now is to strengthen the dairy field through technology and human resource development in the years ahead.

Important areas which can make the dairy scenario self sufficient, viable and feasible are

01. Promoting dairy enterprise through transfer of technologies, improved farm financing, supply chain management, and better market access
02. Encouraging nutraceuticals from milk, functional foods with prebiotics, probiotics, micronutrients and other bioactive compounds for improved human health
03. Value addition to traditional milk products through application of new processes, packaging and mechanised manufacturing systems
04. Clean milk production with a focus on emerging health concerns
05. Raising productivity of dairy animals through improved feeding strategies, efficient nutrient utilization and use of non-conventional feed resources
06. Development of state-of-the-art dairy production systems using better housing, fertility management practices and better germplasm

Livestock sector plays an important role in the **economy of Kerala** because in rural parts of Kerala it helps to overcome poverty and unemployment to a great extent. It ensures a regular flow of income to the weaker section of population. The efforts of Kerala Government and other non-government organizations to enhance dairy sector through various programmes are noteworthy

Dairying is an important source of subsidiary income to small and marginal farmers and agricultural labourers of Kerala. Being a balanced food, it is an essential part of the diet of the children and invalids. The changing food habits of the people have increased the demand for milk and milk products. As per the recommendations, the per capita consumption of milk will be 240 gm/day, which means that the 333 lakh people of Kerala need 79.92 lakh litres of milk per day. The Cattle population in Kerala which was 33.96 Lakh in 1996 declined to 21.22 Lakh in 2003 and further to 17.40 Lakh by 2007. The cross bred cattle population which was 67 % in 1996 has increased to 93% in 2007.

It is quite appreciable that the productivity of milch animal is considerably increasing. It is estimated that the State's production of milk during 2007 is only 58 lakh litres per day. The demand production gap is nearly 22 lakh litres, which is being met by milk-import from neighbouring States by Milma as well as by private traders. Out of 58 lakh litres of milk produced within the State, the organized sector handles only 18 percent. The rest is marketed either directly by the producer or vendor in the unorganized sector.

Low per capita availability of land, High feeding cost by virtue of concentrate based feeding pattern, Insufficient green fodder, comparatively low productivity of milch animals, high labour cost, unscientific herd management techniques, low profitability are some of the bottle necks of dairy development activities of Kerala. In the state, government has taken serious efforts to redress the critical gaps of the sector, in order to overcome the weaknesses and present threats of the sector so as to ensure that the sector turns viable, self sufficient and profitable in the near future

With a holistic objective to practice scientific eco friendly farm management techniques and maximize the profit from dairy farms by way of energy conservation techniques and adapting new intensive fodder cultivation techniques, following projects are proposed under ATMA – SREP 2015-16

Proposed Projects under ATMA SREP 2015-16 are

01. Construction of modern and scientific cattle sheds in context of the climatic changes.

02. Ensuring Green fodder security *Through Open Type Precision Farming*

Area of Operation

Project will be implemented in all the districts of Kerala. The components will be considered on the basis of the feasibility and viability.

Salient features of the proposed projects

- Projects proposed are researchable issues.
- Subject of the proposals are for reducing the critical gaps in dairy sector.
- Proposed project will ensure profitable and sustainable dairying in kerala.
- Proposals are intended to reduce the wastage of natural resources like water and other inputs.
- The proposed projects ensure conservation of natural energy. They are eco-friendly and aimed at reducing the green house gases.
- Projects proposed are role models and replicable to the farming community.
- Project shall nurture allied sector like Animal Husbandry and Agriculture by providing enriched bio manure and biomass.

Financial details

The total outlay is Rs. 58.80 lakhs, financial assistance (ATMA) Rs. 45 lakhs and the beneficiary contribution is Rs 13.80 lakhs.

Implementing Agency

Dairy Development Department shall be the implementing agency. The project shall be implemented with the help of various stake holders like ATMA, Dairy Co-operative Societies, Research Institution, Financial Institutions etc. The fund shall be routed through the Deputy Director of the concerned district. Dairy Extension Officers play a major role in implementation

DAIRY DEVELOPMENT DEPARTMENT

RURAL DAIRY EXTENSION AND ADVISORY SERVICES - 2015-16

SREP - PROJECTS

Sl.N o	SCHEME	NO. OF UNITS	UNIT COST			COST FOR TOTAL UNITS		
			TOTAL	SREP	BEN. CONT	TOTAL	SREP	BEN. CONT
			Rs in lakh	Rs in Lakh	Rs in Lakh	Rs in Lakh	Rs in Lakh	Rs in Lakh
1	Modern cattle shed adaptabe to climatic changes	41	1.3	1	0.3	53.3	41	12.3
2	Green Fodder Security through Open Type Precision Farming	3	1.5	1	0.5	4.5	3	1.5
3	Implementation, Documentation and Monitoring Charges	Lumpsum				1	1	0
GRAND TOTAL						58.8	45	13.8

CONSTRUCTION OF MODERN CATTLE SHED ADAPTABLE TO CLIMATE CHANGE

01. BACKGROUND

Cattle rearing help in augmenting farm family income, narrowing down protein gap, providing manure and draught power for crop cultivation. Climate change is one of the important factors that affect the production and profitability of milk production. In Kerala this challenge is not being taken into account properly and this may severely affect the cattle health as well as wealth. This project is to redress the hazards involved in housing of cows in the context of the climate change.

02. OBJECTIVES

- To provide scientific housing for cattle for overcoming the hazards of climate change.
- To control the hazards of excess atmospheric temperature by providing provision for adequate air circulation and thus to ensure the comfort of dairy animals.
- To harvest roof water with low cost technique and consequently utilize it for cleaning of cattle shed and cleaning of milch animals.
- To provide roofing for dung pit so as to minimize pollution hazards.
- To ensure minimum use of water in cattle shed.

03. NEED AND JUSTIFICATION

Climate change is expected to alter temperature, water availability, atmospheric carbon dioxide levels and precipitation and in all ways that will affect the productivity and efficiency of livestock systems. Climatic changes alter the thermal environment of animals which in turn influences the performance factors of animals like general health, reproductive capacity, feed conversion efficiency, milk production capacity etc. Climatic changes will increase thermal stress of animals and thereby reduce milk production in all phases and thereby reducing profitability. It is advisable that the maximum tolerant level of pure exotic breed of cattle be 25.3°C. It is estimated that for every 2°C raise from the maximum tolerant level, there will be a loss of 110ml of milk per day. Through scientific housing and management technologies climate impacts on cattle rearing can be reduced. Such technologies are crucial for the survival and profitability of the enterprise.

04. THE NEW MODEL

- Cattle shed (for 5 cow unit) is permanent with standard facilities like feed passage, feeding manger, standing space, passage, dung and urine channel etc. as per the plan attached. The height of the pillar is 246 cm, roof 147cm .
- There will be provision for the air ventilation of 105cm height for air circulation and temperature control.
- Provision is given for low cost automatic water feeding system for ensuring enough drinking water for the animals continuously.
- A provision for low cost roof water harvesting is included. For this there will be provision for collecting roof water from the cattle shed or house trough PVC pipes, simple filtering unit and a silpauline lined earthen pit having 25000 liters capacity.

- Wall fans will be provided for ensuring the comfort of dairy animals. Along with this mist spraying facility is provided for reducing the body temperature of the animal whenever is required.
- Provision for roofed dung pit and urine collection pit for avoiding the wastage of valuable organic cow dung and urine which can be utilized for agriculture purpose. This will reduce pollution problems also.

05. BENEFICIARIES

Beneficiaries of the project will be those elite farmers who rear good breeds of cattle (min 5 no.s) . The beneficiary shall have suitable land for the construction of cattle shed. Preference will be given to those farmers having the major income from dairy farming, quantity of milk produced and poured to the milk society etc. Also preference will be given for the progressive farmers with good communication skill, positive attitude etc.

06. ACTIVITIES

After the approval of the project the beneficiary shall be selected by the Deputy Director. Site for the construction of cattle shed shall be finalized by Dairy Extension Officer. Proper guidelines will be given to the beneficiary. The beneficiary has to construct the cattle shed as per the plan which is attached as Appendix-1 and the accessory equipments have to be purchased. After the physical verification the implementing officer has to release the financial assistance. The beneficiary has to sign an MOU between the Department by specifying the terms and conditions including the post project management.

07. IMPLEMENTATION

The responsibility of the project Implementation shall be vested with the Dairy Extension Officers working at Block level. The works has to be executed by the beneficiary.

08. FINANCIAL ASPECTS

Expenditure Per Unit

Cost of construction of cattle shed (single row 300 Sq. Feet)	: Rs. 60,000/-
Cost of construction of dung pit of 6Mx3Mx3M with roof	: Rs. 25,000/-
Low cost water feeding system and micro sprinkler	: Rs. 12,000/-
Cost of wall fan (4Nos.)	: Rs. 9,000/-
Cost of Pressure washer (1 No.)	: Rs. 7,500/-
Cost of Fly Catcher	: Rs. 5,000/-
Cost of roof water harvesting structure with filtering unit	: Rs. 10,000/-
Cost of providing LED lamps for lighting purpose	: Rs. 1000/-
Miscellaneous Expenses	: Rs. 500/-
Total	: Rs. 1,30,000/-

Means of Finance

Grant from ATMA through Dairy Dev. Dept.

: Rs. 1,00,000/-

Beneficiary contribution

: Rs. 30,000/-

Total

: Rs. 1,30,000/-

NO. OF UNITS	ONE UNIT			TOTAL UNITS		
	COST	SUBSIDY	BEN. CONT	TOTAL COST	SUBSIDY	BEN. CONT
	(RS)	(RS)	(RS)	(Rs in Lakh)	(Rs in Lakh)	(Rs in Lakh)
41	1,30,000	1,00,000	30,000	53.3	41	12.3

09. A COMPARISON BETWEEN TRADITIONAL CATTLE SHED AND PROPOSED CATTLE SHED ADAPTABLE TO CLIMATIC CHANGES

TRADITIONAL CATTLE SHED	PROPOSED CATTLE SHED ADAPTABLE TO CLIMATE CHANGE	ADVANTAGE
Height of the pillar is 180 cm	Height of the pillar is 246 cm	Reduces heat stress
No provision for the ventilation of roof	Provision for the ventilation of roof for air circulation	Reduces temperature inside shed and ensure fresh air
No provision for automatic water feeding	Provision for low cost water feeding which ensures the availability of water always	Increases milk production
No provision of wall fan and mist spraying	Provision of mist spraying for temperature control	Reduces heat stress and increases milk production
No Provision of collection of cow urine and waste water separately. Collected in the dung pit.	Provision for the separation of each animal	Ensures hygiene of animals and increases the physical and biological quality of milk
No provision of fly catcher	Provision for fly catcher	Ensures comfort to the dairy animals
No provision of roof water harvesting	Provision of low cost of roof water harvesting of 25000 litre	Ensure hygiene of animal and shed, increase the biological quality of milk promote natural resource management.
Not using pressure washer	Introduces pressure washer	Reduces the utilization of water up to 40 %
Not using rubber mat for bedding of animals	Provides rubber mat	Ensure comfort to milch animals

(Cont.....4)

10. EXPECTED BENEFITS

- Introduces a new model of cattle shed on the ground of climate change.
- Ensure maximum comfort to the milch animals.
- Ensure the optimum use of water in the cattle shed.
- Ensure hygiene and pollution free dairy farm.
- Role model to other dairy farmers.

11. PROFITABILITY OF MILK PRODUCTION

1.Average milk Production of milch animals in the commercial dairy farms	: 15 Litres per day
2.No.of milking days/lactation	: 300 days
3. Average no.of cows in milking stage	: 8 Nos
4. Expected increase of milk through the climate control and automatic water feeding (@ 1.5 ltr./ animal/day ie, 12 Litres x 365 days)	: 4380 litres
5. Anticipated income per year through the new model Cattle shed @ Rs.28/ltr	: <i>Rs.1,22,640 per annum</i>

12. MONITORING

Monitoring of the project will be vested to Deputy Director and District project Manager ATMA.
The project shall be completed before December 2015

GREEN FODDER SECURITY THROUGH OPEN TYPE PRECISION FARMING

01. BACKGROUND

Fodder production is the crucial activity for the economic milk and animal husbandry activities. In Kerala it's estimated that 55% of the cost of milk production is through the cost of feeding. This is mainly due to the concentrates based feeding. Fodder cultivation is essential for maintaining the productivity of milch animals as well as for quality milk production and maintaining good health. It can be also used as the feeding material of goat, rabbit etc. Since the availability of land for fodder cultivation is limited; high yielding varieties of fodder crops like CO-3, CO-4 etc. are the common in the farmers' field.

02. OBJECTIVES

- To introduce open type precision farming in fodder production in 1 acre of land.
- To assure maximum productivity of fodder.
- To optimize the use of natural resources like water and inputs like chemical fertilizers.
- To maximize the milk productivity and maintain good health condition of milch animals.

03. NEED AND JUSTIFICATION

In Kerala cattle rearing is mainly on concentrate feeding system. Because of the excessive use of high cost concentrates, the cost of milk production will be more. This situation may compel the increase of market milk price. In Kerala milk price is maximum when compared to other southern States. But still the profitability of dairy farmers in Kerala is low because of the high cost of milk production. The only solution to solve is to reduce the cost of production. The best option is to produce more green fodder and feed to the milch animals. Considering the limited land availability for fodder cultivation, open type precision farming can be considered as a low cost technology for assuring the maximum fodder production.

04. TECHNOLOGY

Precision Farming in Fodder Cultivation is an innovative and low cost programme for fodder production by providing online fertigation as per prescribed schedule. The quantity and quality of the inputs like water, fertilizer etc. is ensured in time as per schedule. There will be specific protocols for each and every activity of crop production. Activities like weeding can be mechanized. The online fertigation with liquid fertilizers are utilized along with organic manure. The advance varieties of fodder will be cultivated. The project components are irrigation tank, motor, fertigation pump, pipe line, drip, sprinkler irrigation etc. open type precision farming is practiced in Kerala but in fodder cultivation it is not being practiced. Technical support from the experts of TNAU and KAU will be ensured.

05. ADVANTAGES

- Ensure maximum productivity of green fodder.
- Low cost technology.
- Optimum utilization of inputs like water (40% can be reduced).
- Use of chemical fertilizers can be reduced considerably due to the application of liquid fertilizers.
- Reduces the cost of milk production considerably.
- Improve the health and fertility of milch animals.
- Reduces the land requirement for fodder cultivation.

06. BENEFICIARIES

Beneficiaries of the project will be the progressive dairy farmers having enough land for fodder cultivation. Priority will be given for those are having more number of dairy animals and knowledge as well as interest in open type of precision farming. Preference will be given for the commercial dairy entrepreneurs, site having suitability of demonstration plot, availability of water supply etc.

07. ACTIVITIES

After the approval of the project the beneficiary will be selected by the Deputy Director as per the recommendation of the Dairy Extension Officer. Proper guidance must be given to the beneficiary about the project and an action plan has to be prepared in consultation with the beneficiary. Minimum one acre of land preferably dry land has to be utilized for the cultivation of fodder. Availability of water has to be ensured. The beneficiary shall complete the project as per the technical guidance from the Research Organizations. The unit contains one fertigation tank, main line, laterals, drip, valves, accessories etc. After the planting of the fodder seeds, it has to be maintained properly as per the technical guidance. Proper record keeping and documentation shall be ensured by the beneficiary and the implementing officer. Continuity and efficiency of the project along with the repair and maintenance has to be ensured by the beneficiary. For this an MOU has to be signed between the beneficiary and Dairy Extension Officer. The process of open type precision farming is given as Appendix – 2

08. IMPLEMENTATION

The responsibility of the project Implementation shall be vested with the Dairy Extension Officers working at Block level. The responsibility of the execution of the works has to be ensured by the beneficiary.

09. FINANCIAL ASPECTS

Estimate Per Unit (1Acre)

Fixed Cost		Amount, Rs.
1	Drip Irrigation System/Mulching Components	55000
2	Water Supply Arrangements	30000
3	Digital Weighing Balance (2 no. 2 Kg & 50 kg)	15000
A	SubTotal	100000
Working Capital for One Cycle (Capitalized)/Cultivation Expenses		
1	Field Preparation	7000
2	Application of Farm Yard Manure	15000
3	Cost of fodder slips	4700
4	Weeding and Plant protection	6000
5	Fertilizer and other inputs	8000
7	Labour Charges	6000
8	Miscellaneous Expenses	3300
B	SubTotal	50,000
C	Total Cost	150000

Means of Finance

Grant from ATMA through Dairy Dev. Dept.

: RS. 1,00,000/-

Beneficiary contribution

: Rs. 50,000/-

Total

: Rs. 1,50,000/-

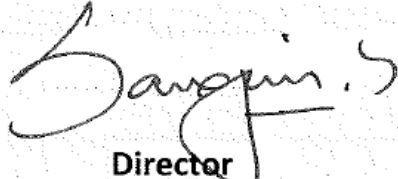
NO. OF UNITS	ONE UNIT			TOTAL UNITS		
	COST	SUBSIDY	BEN. CONT	TOTAL COST	SUBSIDY	BEN. CONT
	(RS)	(RS)	(RS)	(Rs in Lakh)	(Rs in Lakh)	(Rs in Lakh)
3	150000	100000	50000	4.5	3	1.5

10. ADVANTAGES

- Introduce new technology of precision farming in fodder.
- Ensure high productivity (30% increase).
- Savings in the use of water (up to 40%).
- Savings of labour charges (up to 15%).
- Promote dairy commercial dairy farming.
- Increase the availability of quality green fodder grass.
- Opens an opportunity of commercial fodder production on the ground of more productivity and income.
- Provides the possibility of mechanization of fodder cultivation such as weeding etc.

11. MONITORING

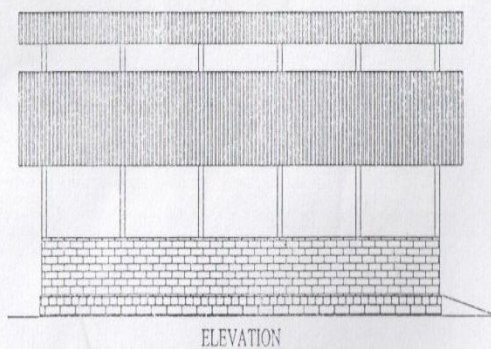
Monitoring of the project will be vested to Deputy Director and District project Manager ATMA. The Director, Dairy Development will monitor the stage wise progress of the proposed project and make periodical evaluation with reference to the improvement in yield, cost of feed etc.


Director

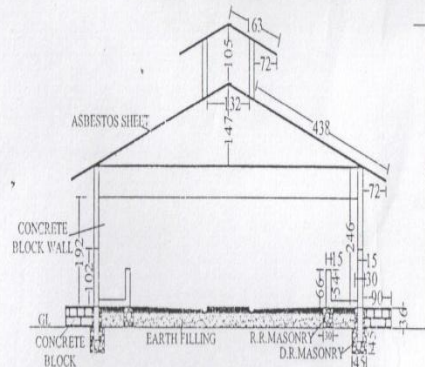
Annexure - 1

Modern Cattle Shed Adaptable to Climatic Changes

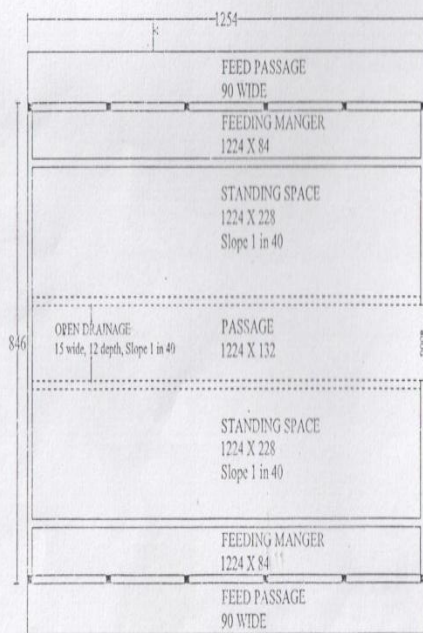
DOUBLE ROW TAIL TO TAIL CLOSE HOUSE FOR 20 COWS



ELEVATION



SECTION AA



FLOOR PLAN

LAND DETAIL	SPECIFICATION	AREA DETAILS	OWNED BY	DESIGNED BY
PLOT AREA - 1.60 ACRE	DOOR :- 132 X 192	PLINTH AREA :- 106.09 M2	BUFFALO FARM	VASTU NIKETAN
SURVEY NO -	SCALE :- 1:100	CARPET AREA :-	PARIYARAM, NEERVARAM	KALADY, ERANAKULAM
PANCHAYATH - PANAMARAM	ALL DIMENSIONS ARE IN CM.	F.A.R. :-	PANAMARAM	09495143455
WARD NO -		COVERAGE :-		No: Date: 20-06-2011

Modern Cattle Shed Adaptable to Climatic Changes



Modern Cattle Shed Adaptable to Climatic Changes (under construction)

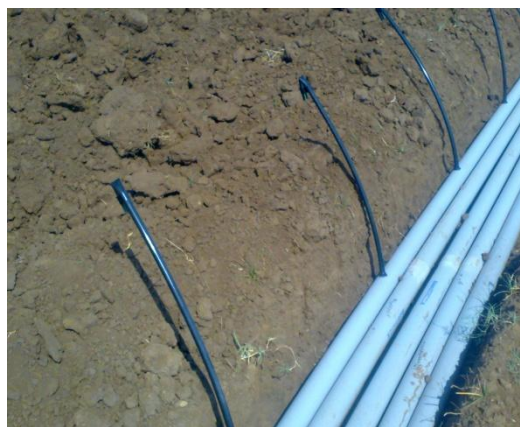


Annexure - 2

Open Type Precision Farming



Low cost Fertigation



Main Line & Laterals



Field Preparation



Early Stage of Cultivation

