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Minor Research Project

On

**"The Role played by BAIF Development Research
Foundation in Dairy Development of Maharashtra with
Special Reference to Ahmednagar Dist."**

Completed by

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Shrirampur, Dist. - Ahmednagar (M.S.)

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CERTIFICATE

This is to certify that Shri. Ghotekar Dnyaneshwar Bajirao, Associate professor in commerce of our college; was awarded minor research project by University Grants Commission; Western Regional Office; Pune 411007 in 2011-12. His minor research titled "The Role played by BAIF Development Research Foundation in Dairy Development of Maharashtra with special reference to Ahmednagar Dist." has been successfully completed.

Date:- 23/12/2014.

Place:- Shirampur.



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Declaration

I solemnly declare that the college and University Grants Commission; Western Regional Office Pune 411007 had granted me a minor research project on "The Role played by BAIF Development Research Foundation in Dairy Development of Maharashtra with special reference to Ahmednagar Dist." I have myself completed this project independently. This minor research has not been fully or partly submitted to any University or for any other degree or for any other grant to any other institution.

Date:- 23/12/2014.

Place:- Shirampur.



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CONTENTS

Chapter No.	Title	Page No.
1.	Introduction and Research Methodology	1
	1.1 Introduction	2
	1.2 Statement of Problem	2
	1.3 Selection of the Subject	3
	1.4 Objectives of Study	4
	1.5 Scope and Limitation of Study	4
	1.6 Hypotheses	4
	1.7 Research Methodology	4
	1.8 Working definitions	5
	1.9 Analysis of Data	6
	1.10 Review of literature	7
	1.11 Chapter Scheme	9
2.	Dairy Development of Maharashtra; An Overview-	10
	2.1 Introduction	11
	2.2 Need of Dairy Co-operatives	11
	2.3 Animal Husbandry	12
	2.4 Veterinary Infrastructure	13
	2.5 Live stock Insurance scheme	15
	2.6 Dairy Development	15
3.	Profile of Ahmednagar District	21
	3.1 History	22
	3.2 Geographical Status	23
4.	Formation and Development of BAIF	31
	4.1 Formation	32
	4.2 BAIF'S Mission	32
	4.3 The BAIF Logo	32
	4.4 Goal	33
	4.5 Research overview	33
	4.6 Central Research Station (CRS)	41
5.	BAIF and Dairy Development	43
	5.1 Introduction	44
	5.2 Dairy Husbandry	45

	5.3	Capacity Building	47
	5.4	BAIF Impact	47
	5.5	Dairy Development	49
	5.6	Research and Technological Development	49
6.	Data Analysis		52
	6.1	Introduction	53
		A. Scientists / Researchers / Officials of BAIF Development Research Foundation	54
		B. Milk producers	55
		C. Chairmen; Directors, Officials of dairy Co-operatives	57
7.	Summery, Conclusion and Suggestions		58
•	Wibliography		61

Chapter - 1

Introduction and Research Methodology

- **Index :**

- 1.1 Introduction
- 1.2 Statement of Problem
- 1.3 Selection of the Subject
- 1.4 Objectives of Study
- 1.5 Scope and limitations of Study
- 1.6 Hypotheses
- 1.7 Research Methodology
- 1.8 Working Definitions
- 1.9 Analysis of data
- 1.10 Review of Literature
- 1.11 Chapter Scheme

Chapter - 1

Introduction and Research Methodology

The Role Played by BAIF Development Research Foundation in Dairy Development of Maharashtra, with Special Reference to Ahmednagar District.

1.1 Introduction:-

Dairy farming is a reliable source of livelihood for small and marginal Farmers. India has the largest population of cattle in the world but the average milk yield is less than 900 Kg per lactation, due to severe genetic erosion and acute shortage of fodder resource. Realising the huge economic drain on the disciple of Mahatma Gandhi and the founder of BAIF; experimented with cross breeding of local cows with exotic dairy breeds of Holstein Friesian and Jersey with spectacular result, This unique experience motivated BAIF to launch the dairy cattle development programme in 1967 through genetic improvement, healthcare, nutrition management and up gradation of local skill for the benefit of larger section of the rural poor.

A dairy is a business enterprise established for the harvesting of animal milk mostly from cows, but also from buffalo, goats, sheep, horses or camels for human consumption. A dairy is typically located on a dedicated dairy farm or section of multi-purpose farm that is concerned with the harvesting of milk. During the last three decades, our nation's milk producers have transformed Indian dairying from stagnation to world leadership. During this period and before, science and technology have played a critical role in supporting our farmer's efforts. During the next decade, that role will be further enhanced as we face a number of new challenges. In this situation the BAIF development-Research Foundation has played vital role to meet the challenges before Indian Dairying business. The livestock development programme for promoting dairy husbandry, launched in early 70^s, serves over 4.4 million families through 3500 cattle development centers in 80,000 villages in Maharashtra, Karnataka, Gujarat, Rajasthan, Punjab, Uttar Pradesh; Uttarakhand, Madhya Pradesh, Andhra Pradesh, Bihar, Orissa and Jharkhand.

1.2 Statement of Problem:-

India has the largest cattle population in the world but the average milk yield is less per lactation. Growing population of the cattle and reducing milk yield.

How much BAIF involved in increasing the milk production and how to increase this participation is question for the project.

1.3 Selection of the Subject:-

Maharashtra is the fifth largest producer of milk and the second largest producer of cow's milk in the country. About 75 lakh people depend on the dairy sector in the state for a living. An Industry expert said that although the state attempted to emulate the successful Gujarat co-operative model, it did not succeed. It failed mainly because of the politicisation of the co-operatives which in turn led to mismanagement moreover, the Government failed to take advantage of the dairy sector's potential. The expert said that the new policy demanded much more from the co-operatives. Maharashtra co-operatives can hardly be defined as co-operatives. They have been no more than a transportation service; ferrying milk from the districts to the metros; he says. However; it will no longer be the same after the implementation of the new policy. For instance, they will be forced to develop a market and a distributor net work; take a pro-active role in training farmers to produce quality; clean and sufficient milk and set up processing and chilling facilities.

The state follows a three-tier system in the co-operative sector. Milk producers are members of a village-level co-operative society. The village co-operative society collects milk for the district union. The milk is then sent to various urban dairies for processing and distribution. There are 23,273 village societies and 99 taluka or district level unions. In such large type of infrastructure BAIF plays a vital role in dairy development for rural. BAIF'S holistic programme approach engaged with Dairy Husbandry and live stock Development; cattle feed & forage production; Tribal Rehabilitation; Health care and clean water supply; self help groups and people's organization. Off farm activities; micro credit; post production systems and marketing, Renewable energy; Vermiculture and Bio fertilizers; sericulture; water Resources Development; sustainable farming system; Bio diversity conservation and environmental awareness; Agro forestry and silvipastures. All above listed integrated rural development programme BAIF has improved livelihood; community health; Empowerment of women; clean environment sustainable Development, people's organization, better quality of life and literacy. BAIF also provided training; R&D; Social sensitization, Information and communication facilities for the rural people. BAIF become part and partial of the rural land less labors; Farmers and policy makers. Taking in to consideration various type of roles played by BAIF the Researcher has taken the research project.

1.4 Objectives of Study:-

1. To study the dairy husbandry for sustainable livelihood.
2. To study the present situation of milk production in India.
3. To study the cattle population and average milk yield.
4. To study the research and development in the dairy husbandry.
5. To study the attempts made by BAIF for dairy development.
6. To study the rural situation for dairy development.

1.5 Scope and limitations of Study:-

BAIF Development Research Foundation Founded at Uruli kanchan Tal Haweli Dist Pune in 1967; BAIF'S role in Dairy Development is foundation stone in the field of cross breeding; Artificial insemination, Feed & Fodder and vaccination. The organization has now matured further and operates programmes in the state of India. It has contributed in novel ways to development action through path-breaking programmes ideas with a strong base of Science and Technology. The researcher is doing his work in Ahmednager district for further collection of the data. He has selected time span of two years i.e.2012-13 and 2013-14. BAIF Development Research Foundation plays a vital role in Integrated Rural Development Programmes. In this project report only Dairy Development programme has been taken in to account for the research project.

1.6 Hypotheses:-

- 1) The work of BAIF Development Research Foundation is very important for Dairy Development.
- 2) The production of milk is increased by accepting BAIF'S Dairy Development Programme.
- 3) The milk producers are satisfied with the dairy development programme of BAIF.
- 4) BAIF's services are easily available at the door steps of milk producers.
- 5) The income & standard of living of milk producers is increased.

1.7 Research Methodology :-

a) Primary Data Collection :-

The primary data is collected through questionnaire, Interviews observation and field visits. There are fourteen talukas in Ahmednager districts. From each taluka, land less labors, marginal Farmers and general farmers (milk producers) were selected for the questionnaire. Members; Directors and Chairmen at the Taluka and District level milk co-operative Federations were interviewed in this regard. There are 17 private plants in

milk procurement, chilling and pasturization activities in Ahmednager District. Questionnaire filled from them. Researcher has visited cattle sheds of milk producers; collection centers of co-op societies and private Plants; Veterinary Doctors; Medical stores; cattle feed producers all are interviewed for collection of data. Total 70 milk producers; 70 members Director of co-op societies; 4 Directors of taluka Sangh, vice chairman shri Rajandra Jadhav of Mahananda and 2 private plant officers & project owners are interviewed and field questionnaire form them the Researcher visited central Research station of BAIF at Uruli Kanchan Dist Pune. All Distributers of BAIF appointed in Ahmednagar District, Veterinarians and paravets are interviewed for collection of data.

b) Secondary data :-

The information in published and unpublished form is called secondary data. Secondary source are the report of a person who relates the term any actual witness of or participants in an events. BAIF: History and Heritage; Annual Reports 2010-11; Annual Report 2011-12; Annual Report 2012-13; Manus Ubha kela; Reports of Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture-GOI, Dairy India, Committee Reports for Dairy Development and many Books, Journals; Research Papers. Committee Reports and various websites are used for data collection.

1.8 Working Definitions:-

1) BAIF:-

Bhartiya agro Industries Foundation is established in 1967 by Dr.Manibhai Desai under the Charitable Trust Act 1882. The Foundation renamed in 1989 as BAIF Development Research Foundation. Rural empowerment; self employment and sustainable livelihood are the objectives of BAIF. Manibhai replaced Gandhijis charakha with crossbreed cows.

2) Dairy Development:-

Maharashtra state is one of the leading states. The state Govt. plays vital role in the field of Agriculture and allied industries. Dairying is the secondary source of income in the state. Co-operative sector and private player's plays vital role in the field of Dairying Procurement, Processing, Packaging, Marketing of milk and milk Products. Maharashtra ranked 6th in India in production of milk.

3) Co-operative Dairying:-

Amul pattern is accepted for dairy business. The three tire system of co-operative plays a vital role in dairy business. Village level Co-operative Dairy,

District level Co-operative milk Sangh and state level co-operative federation is existence in Maharashtra. Operation flood scheme succeeded through this co-operative system.

4) Cross breeds:-

India has highest cattle population in the world. But the production of milk from each cattle is less. India ranked first in milk production in the world. Exotic animals are numerous in dairying. BAIF accepted cattle Development programme since 1967. Gir + Jersey, Gir +H.F; Tharparker, Sahiwal. Lal kandhari these exotic cows used for crossbreeding.

5) Artificial Insemination:-

Foreigen semen from jersey, Holstein Frisian bulls used for artificial inseminations. The milk production is increased from 2 to 3 kg to 9 to 11 kg per day in loctation.

6) Veterinary Services:-

Artificial insemination, foot & mouth diseases, Cattle feed, Mineral mixture, Drinking water, Fodder, Cattle shed, chaff cutter, cylege, biogas, compost, vaccination, consultancy services to milk producers, co-operative society, Sangh and Federation for increasing Dairy business.

7) Dairy Publications:-

For guidance purposes publications are important, milk man's diary, Books, News papers, monthly and half yearly publication.

8) Integrated dairy support services:-

India secured 1st rank in milk production in the world. Land less labours, marginal and general farmers plays a vital role in milk production. R&D support services are required for cross breed livestock. Artificial insemination, Green and dry fodder, cattle feed, Anti foot and mouth disease vaccination, mineral mixture, drinking water, chaff cutter, vermi compost; cattle shed biogas etc. support services are helpful to the dairy business.

1.9 Analysis of data:-

The Researcher approached 14 talukas of Ahmednagar district. land less labours, marginal farmers and general farmers were selected for the collection of data. Two taluka milk Sangh and two private milk plants were selected for questionnaire. BAIF Development Research Foundation has 14 centers in the district. BAIf Mitra veterinary practitioners are appointed for offering required services. The frozen semen is provided from central research station Uruli Kanchan. CRS is supreme authority to control and co-ordinate R&D services in the

District. The data is analyzed by using scientific tools, graphs, and equations. Conclusions are completely depend on primary and secondary data. It is assumed that information given by the interviewers is true and faithful.

1.10 Review of Literature :-

A) Books :-

- 1) Manus Ubha kela Authored by N.G.Hesade. Rajhans publisher's pune published this book in 1994. The success story of BAIF Development Research Foundation Uruli Kanchan given in this book. How the Uruli Kanchan and surrounding villages are changed by adopting cattle development programme planned by BAIF is told in this book. Cropping pattern; Irrigation, fodder, Forage, cattle shed; milk co-operative society, Members & Directors; Meeting growing income and standard of living etc micro observations pointed out in this regard. Mahatma and Manibhai, How they change the synario is deeply explained.
- 2) BAIF: History and Heritage - this forty pages booklet dilt with the foundations activities. From foundation all success stories explained in this booklet. How the foundation is formed and developed is explained with appropriate information. The booklet contains seven sins; BAIFS holistic programme approach, preface of president; genesis; goal, crossbreed cow; The modern charkha for rural employment, programme; dairy husbandry , natural resources management, capacity building, Gandhian values: our heritage, programme impact and the Gandhian way : Manibhai Desai explained with appropriate photograph, statistical information, charts, diagrams & pictures used whenever necessary.
- 3) Annual Reports: - The BAIF Foundation is registered under the charitable Trust. The foundation stone was laid on August 24, 1967 by the president of India Dr. Zakir Husain at Uruli Kanchan. The foundation celebrating its Golden Jubilee in near future. Significant achievements are discussed in each Annual report. 2010-11, 2011-12, and 2012-13 Reports are studied while preparing this Project Report. Benefits more than 4.4 million families spread over 80,000 villages in Maharashtra, Karnataka, Gujarat, Rajasthan, Punjab, Uttar Pradesh, Uttarakhand, Madhya Pradesh, Andhra Pradesh, Bihar, Orissa (Odisha) West Bengal, Jharkhand, Chhattisgarh, Himachal Pradesh and Tripura states. Presently 0.8 million cows and buffaloes are under milk production, producing milk worth Rs 2800 cores per annum.
- 4) Gupta P.R. (Editor) 1997; Dairy India; New Delhi. This book offers all its pages for dairy development of India. State wise information is given in the

list of research and development institutes is attached with appropriate charts, tables and diagrams. Graphs showing progress are also used whenever needful.

- 5) Dr.A.B.Pande:- An innovative approach of BAIF in dairy husbandry for sustainable livelihood. BAIF'S Approach. This book contends with founders thought modern charkha for sustainable livelihood the secondary income source of farmers. State wise success stories of milk producers are discussed in this book.
- 6) N.G.Hegade:- Promotion for Dairy husbandry for sustainable livelihood. BAIF'S Approach, Dr.N.G.Hegade is authorised expert for Dairy Development in India. He has travelled half in the world to study the Dairy Business in India and abroad. He has explained the efforts; success and future situation of dairying in India.
- 7) Mangurkar B.R.1997 livestock breeding programme in India a core study: BAIF. This book contents the holistic cattle development programme of BAIF.
- 8) N.G.Hegade 1995, Prevention of cow slaughter; economic gains as primary consideration Pune. Dr Hegade discussed the causes of cow slaughter and pointed out the remedies.
- 9) Dairy India: - This reference book is macro and micro history of dairy business in India. Comparative study has made in this regards. It has explained live stock; milch animals, cross breeding, procurement, processing, marketing and mainly with income generation through dairy business.

B) Departmental Committee Reports:-

1. Economic Survey, 2009-10,2010-11 Government of India.
2. Reports of the Technical Committee of Direction for improvement of Animal Husbandry and Dairying Statistic, Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture, Government of India.
3. Directorate of economics & statistics, Ministry of Agriculture Government of India.
4. State Department of Animal Husbandry, veterinary services and Dairy Development.
5. Maharashtra state milk co-operative Federations Reports 2011-12, 2012-13.
6. All India livestock Census Reports. 2007

7. Tata statistical outline of India 2005-06.

C) Websites:-

- a) www.banf.org.in
- b) www.nddb.org.in
- c) www.ndri.org.in
- d) www.nagarzp.gov.in
- e) www.indairyasso.org Indian Dairy man

D) News Papers, Weekly and Monthly:-

1. Dainik sakal
2. Dainik lokmat
3. Dainik Gawkari
4. Dainik Pudhari
5. Dainik Punyanagari
6. Dainik Deshdoot
7. Agrowan
8. Shetkari
9. Times of India

1.11 Chapter Scheme:-

- Chapter1st - Introduction and Research Methodology.
- Chapter2nd - Dairy Development of Maharashtra: An Overview.
- Chapter3rd - Profile of Ahmednagar District.
- Chapter4th - Formation &Development of BAIF Development Research Foundation.
- Chapter5th - BAIF and Dairy Development.
- Chapter6th - Data Analysis.
- Chapter7th - Summary, Conclusion & Suggestions
- Bibliography / Wibliography.

Chapter - 2

Dairy Development of Maharashtra -An Overview

- **Index :**

- 2.1 Introduction
- 2.2 Need of Dairy Co-operatives
- 2.3 Animal Husbandry
- 2.4 Veterinary Infrastructure
- 2.5 Livestock Insurance scheme
- 2.6 Dairy Development

Chapter - 2

Dairy Development of Maharashtra -An Overview

2.1 Introduction:-

Milk is one of the most important item of human diet; especially vegetarian diet, besides, milk is an important source of income of a large number of landless labours and farmers. Since these farmers produce milk in very small quantities, they face a number of problems in selling it at remunerative prices. Dairy cooperative can provide a suitable solution to this problem. Milk is recognized as the most valuable and wholesome food for human being. Nutritive as well as a protective food. According to the Nutrition Advisory Committee of the Indian Council of Medical Research, a balanced diet for an adult Indian should include 285 grams of milk per day. But, against this requirement the actual intake per head is much less being only 140 grams. It ranges from 37 grams in Kerala to 396 in Punjab. It has been much low as compared to New Zealand, Denmark, Holland, Australia & USA where the per capita consumption is over 1700 grams per day. Most of the milk is produced in rural areas; while the profitable market for milk and its products is largely urban. In view of these peculiar problems it has been rightly recognized by the planning commission that producers co-operatives should be organized in villages to supply milk to the urban milk supply schemes; milk powder making plants and to the consumers. This would not only ensure adequate supplies of fresh milk to the urban consumers but also bring profitable returns to the producers.

2.2 Need of Dairy Co-operatives:-

The dairy industry in India has developed somewhat different from that in other advanced countries. On account of the increasing pressure on land and continued fragmentation of agricultural holdings. There is no medium or large privately owned dairy farm. Efforts by some manufacturers of dairy products to set up such farms did not succeed and they have also some to depend mainly on milk collected from small producers in the rural areas either by their agents or by the Co-operatives. Dairy co-operatives are very essential to Indian conditions because of the following reasons.

1. Most of the milk is produced in rural areas while the profitable market is based in urban areas.

2. Most of the milk is produced in small quantities by small farmers. This renders the transportation to the consuming areas very difficult.
3. Lack of suitable transport facilities, non reliability of veterinary services in the rural areas, inadequacy of properly organized system of processing and marketing and lack of cheap and nutritious feed and fodder.
4. Producer has often no direct link with the consumer and hence; the price received by him is rather low.
5. There are no medium or large privately owned dairy farms because of the increasing pressure on land.

The Government of Maharashtra had established Dairy Development Department for the development of the dairy industry and increasing the production of milk in the state of Maharashtra. The office of the District Dairy Development officer was established under the Dairy Development Department, Government of Maharashtra. For the purpose of encouraging the dairy industry and encouraging the farmers to take up the rearing of the cows as a side business to increase their income and changed their standard of living. The office achieves this objective through the establishment of the Dairy Co-operatives and facilitates the collection of the milk through Govt. dairies & milk chilling centers. These in turn provide the market for the milk produced in the remote areas of the district. This also ensures the quality of milk to the urban customers.

2.3 Animal Husbandry:-

Live stock and dairy plays an important role or providing supplementary income opportunities to rural households having agriculture as a main source of livelihood. Presently; Provisional data of 18th livestock census 2007 is available. According to this the total livestock in the state was about 360 lakh and livestock per lakh population was about 37000. The state's share in poultry population of India was 10%. The state ranks sixth in India both in livestock and poultry population. The field work of 19th livestock census 2012 was completed on 15th October, 2012 in the state.

2.4 Veterinary Infrastructure:-

Region wise Veterinary infrastructure in the state is given in Table 2.1

Table 2.1
Veterinary Infrastructure

(Up to March, 2012)

Region	Live stock (Census 2007) (in lakh)	District Artificial Insemination (DAI) centers	Polyclinics ^s	Mini Polyclinics	Veterinary dispensaries	Mobile vet. Clinics	Primary veterinary aid centers
Konkan	21.36	4	5	20	142	12	354
Nashik	84.16	5	5	25	345	6	515
Pune	82.52	4	5	26	460	7	559
Aurangabad	40.93	3	4	20	160	2	288
Latur	35.06	3	4	20	165	3	290
Amravati	45.68	4	5	27	193	17	379
Nagpur	49.84	4	7	30	280	18	466
Maharashtra	359.55	27	35	168	1745	65	2851

Source: Office of the Commissioner of Animal Husbandry, GoM.

\$ Includes three polyclinics of Maharashtra Fishery Science University

The state provided medical facilities for various diseases and also implement vaccinated are given in Table 2.2

Table 2.2
Regionwise Cases Treated and Vaccinated 2012-13

Region	No of cases treated				
	General		Operations		Vaccination (Including poultry)
	Treatments	Castration	Major	Minor	
Konkan	564	33	1	29	3,133
Nashik	1,844	86	3	89	8,509
Pune	2,380	51	5	45	7,332
Aurangabad	686	29	1	26	4,848
Latur	775	28	2	35	3,438
Amravati	1,089	37	2	38	3,755
Nagpur	980	43	2	43	6,411
Maharashtra	8,318	307	16	305	37,426

Source: Office of the Commissioner of Animal Husbandry, GoM.

- **Artificial Insemination:-**

The Artificial Insemination (AI) facility has been provided in 4,864 medical facility centers. Laboratories of frozen sperms are located at Pune; Nagpur and Aurangabad where sperm straws are prepared and are distributed

through these three and 27 district Artificial Insemination centers to all the AI centers in the state. The region wise AI performance in the year 2012-13 up to Oct is shown in Table 2.3 Region wise AI performed 2012-13

Table 2.3
Region wise AI Performed 2012-13

Region	Artificial Insemination Performed					No. of calves born			
	Exotic	Cross breed	Indigen-ous	Buffalo	Total	Cross breed	Indigen-ous	Buffalo	Total
Konkan	13	9	0	14	36	7	0	5	12
Nashik	60	120	4	31	215	61	4	10	75
Pune	21	233	45	148	447	83	16	51	150
Aurangabad	20	46	9	17	92	21	2	6	29
Latur	7	30	34	30	101	11	9	10	30
Amravati	22	17	3	20	62	15	0	9	24
Nagpur	27	43	2	6	78	21	1	3	25
Maharashtra	170	498	97	266	1,031	219	32	94	345

Source: Office of the Commissioner of Animal Husbandry, GoM.

• **National Project for Cattle and Buffalo Breeding:-**

The National Project for Cattle and Buffalo Breeding (NPCBB) is a 100 Percent centrally sponsored programme, implemented through Maharashtra livestock Development Board for strengthening and expansion of animal breeding services; indigenous breed preservation and also for generation of self employment for rural youths. During 2011-12, the GOI provided Rs 10crore and the expenditure incurred was Rs 9.25crore. During 2012-13, GOI released Rs 7.06crore and an expenditure of Rs 5.29crore has been incurred up to November. The expenditure was incurred on modernisation of three frozen semen laboratories, procurement of 84 bulls for AI, Organisation of 630 in fertility camps, implementation of embryo transfer technology and training of 1200 AI workers.

As a part of NPCBB for effective conservation and Improvement in husbandry of the pure indigenous breed cattle, total 71 bulls (of which 29 khillar; 30Gavlau, 9 surti and 3 Jersey HF breed bulls) have been distributed for natural insemination at local level; through MLDB in 2011-12. During 2012-13 total 66 breeding bulls (6 Red Kandhari, 8 Khillar, 2 Gir, 22 Gir cross; 15 sahiwal, 5 Jersey cross) are distributed for natural services up to November. Besides this; since the milk generating capacity of the indigenous buffaloes in the state is less, there is a target to distribute 990 murha male buffalo calves to the needy farmers/pastoralists. During 2012-13 the GOI has provided Rs

4.10crore and expenditure incurred was Rs 1.16crore up to December. During 2011-12, in all 287 murha male buffalo, while during 2012-13 up to November, 278 murrha bulls were distributed by MLDB.

2.5 Livestock Insurance scheme:-

Livestock Insurance; a centrally sponsored scheme is implemented by MLDB since 2006-07 with twin objectives of providing protection mechanism to the farmers and cattle rearers against any eventual loss of their animals due to permanent disability or death and attaining qualitative improvement in livestock and their products. Under this scheme, two milch cattles are insured per cattle owner. The central assistance for payment of 50% of premium is provided and remaining 50% premium is borne by cattle owners. The scheme is implemented in 18 districts in the state. During 2012-13 total 5,577 cattle are insured and expenditure of Rs58.79 lakhs is incurred on this scheme.

2.6 Dairy Development:-

Dairy is a non farm activity, which offers the potential for generating additional income and employment opportunities for rural households besides improving nutritional standards. The state ranks sixth in India in milk production. Milk production and per capita availability of milk is give in Table 2.4.

Table 2.4

Milk Production and Per Capita Availability

Year	Milk Production (MMT)		Per capita availability (grams per day)	
	State	All-India	State	All-India
2008-09	7.5	108.5	187	258
2009-10	7.7	112.5	190	264
2010-11	8.0	121.8	196	281
2011-12	8.5	127.9	206	290
2012-13 [#]	8.6	133.8	208	N.A

Source : Office of the Commissioner of Animal Husbandry, GoM.

During 2011-12, there were 73 milk processing plants and 141 milk chilling centres with capacity of 74.73 lakh liters and 25.17 lakh liters per day respectively under Government and co-operative sectors to gather. The average daily collection of milk by the Government and co-operative dairies taken to gather was 38.57 lakh liters during 2011-12 and 39.22 lakh liters during 2012-13 (up to November). Average daily collection of milk by Govt. and co-operative dairies are shown in table 2.

Table-2.5**By- Products of Milk from Government and Co-Operative Dairies**

By-product	Unit	2010-11	2011-12	2012-13 ⁺	Per cent change in 2011-12 over 2010-11
Skimmed milk powder	MT	255.63	667.68	1,051.63	161.2
White butter	MT	142.30	397.86	600.68	179.6
Ghee	MT	103.83	29.84	54.25	(-71.3
Energee	Lakh bottles	61.58	56.10	23.43	(-)8.9
Lassi	"	64.92	34.94	16.16	(-)46.2
Masala milk	"	12.53	5.49	3.31	(-)56.2
Long life cow's milk	"	1.75	1.11	0.37	(-)36.6

Source: Office of the Commissioner of Dairy Development, GoM. +upto Dec. 2012

Table - 2.6

Livestock and Poultry in Maharashtra State

S.N.	Year	Cattle	Buffaloes	Sheep and goats	Other live stock+	Total live stock	Sheep and goats per hundred hectares of grazing and pasture land (No.)	No. of Livestock per hundred hectares of net area cropped (No.)	Livestock per lakh of population	Total poultry
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	1961	15,328	3,087	7,273	360	26,048	512	144	66	10,578
2	1966	14,729	3,042	7,326	352	25,449	522	140	57	9,902
3	1972	14,705	3,301	8,038	317	26,361	491	164	52	12,217
4	1978	15,218	3,899	10,199	326	29,642	650	162	51	18,791
5	1982	16,162	3,972	10,376	409	30,919	673	175	48	19,845
6	1987	16,983	4,755	12,068	449	34,255	950	189	48	24,839
7	1992	17,441	5,447	13,016	489	36,393	940	202	45	32,187
8	1997	18,071	6,073	14,802	692	39,638	1,104	223	50	35,392
9	2003	16,738	6,084	13,624	612	37,058	1,016	213	39	34,596
10	2000*	16,184	6,073	13,301	397	35,955	1,064	206	37	64,464

Source - Livestock Census 2007

Note - Details may not add up to totals due to rounding.

* Provisional

+ 'Other livestock' includes pigs, horses and ponies, mules, camels, donkeys.

Table - 2.7**DETAILS OF CO-OPERATIVE DAIRY SOCIETIES AND DAIRY UNIONS**

Particulars	Co-operative dairy societies			Co-operative dairy unions		
	2008-09	2009-10	Percentage change	2008-09	2009-10	Percentage change
Societies (No.)	27,255	31,645	16.1	109	106	(-)2.8
Members (lakh)	18.68	21.69	16.1	0.60	0.52	(-)13.3
Share capital	24.86	27.34	10.0	103.12	92.80	(-)10.0
Working capital	24.51	26.96	10.0	87.62	78.85	(-)10.0
Milk procured (value)	113.08	124.38	10.0	167.61	150.84	(-)10.0
Milk & milk products sold (value)	68.01	74.81	10.0	81.35	73.21	(-)10.0
Societies in loss (NO.)	13,045	14,349	10.0	47	42	(-)10.6

Source: Office of the Commissioner for Co-operation and Registrar Co-operative Societies, GoM

Table - 2.8

DISTRICTWISE IMPORTANT POPULATION INDICATORS BASED ON CENSUS 2011

Sr.No	State/District Name	No. of Households (In thousands)	No. of female headed households	Total Population (In thousands)	Literacy Rate	Decennial Growth Rate (%) (2001-11)	Density (population per sq.km.)	Sex Ratio	Child Sex Ratio (age group 0-6 years)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Mumbai City	638	107	3,146	88.48	(-)-5.75	20,038	838	874
2	Mumbai Suburban	2,028	254	9,332	90.90	8.01	20,925	857	910
3	Thane	2,431	221	11,054	86.18	35.94	1,157	880	918
4	Raigad	597	73	2,635	83.89	19.36	368	955	924
5	Ratnagiri	393	100	1,613	82.43	(-)-4.96	196	1,123	940
6	Sindhudurga	205	45	849	86.54	(-)-2.30	163	1,037	910
7	Nashik	1,180	104	6,109	80.96	22.33	393	931	882
8	Dhule	409	43	2,049	74.61	19.96	285	941	876
9	Nandurbar	320	27	1,646	63.04	25.50	276	972	932
10	Jalgaon	892	94	4,224	79.73	14.71	359	922	829
11	Ahmednagar	902	81	4,543	80.22	12.43	266	934	839
12	Pune	2,077	199	9,427	87.19	30.34	603	910	873
13	Satara	640	90	3,004	84.20	6.94	287	986	881
14	Sangli	585	74	2,821	82.62	9.18	329	964	862
15	Solapur	859	93	4,316	77.72	12.10	290	932	872
16	Kolhapur	821	103	3,874	82.90	9.96	504	953	845
17	Aurangabad	737	55	3,696	80.40	27.33	365	917	848
18	Jalna	388	29	1,958	73.61	21.84	255	929	847
19	Parbhani	360	24	1,836	75.22	20.18	295	940	866
20	Hingoli	227	16	1,179	76.04	19.43	244	935	868

21	Beed	545	36	2,586	13.53	19.65	242	912	801
22	Nanded	656	47	3,357	76.94	16.70	319	937	897
23	Osmanabad	349	31	1,660	76.33	11.69	219	920	853
24	Latur	474	33	2,456	79.03	18.04	343	924	872
25	Buldhana	553	47	2,588	82.09	15.93	268	928	842
26	Akola	391	36	1,819	87.55	11.60	321	942	900
27	Washim	258	22	1,197	81.70	17.23	244	926	859
28	Amaravati	637	63	2,888	88.23	10.77	237	947	927
29	Yavatmal	640	65	2,775	80.70	12.90	204	947	915
30	Wardha	303	32	1,296	87.22	4.80	205	946	916
31	Nagpur	996	112	4,653	89.52	14.39	470	948	926
32	Bhandara	276	36	1,199	85.14	5.52	293	984	939
33	Gondia	289	33	1,322	85.41	10.13	253	996	944
34	Chandrapur	530	58	2,194	81.35	5.95	192	959	945
35	Gadchiroli	246	27	1,072	70.55	10.46	74	975	956
Maharashtra State		23,831	2,513	1,12,373	82.91	15.99	365	925	883

Source: Registrar General of India.

Note : Details may not add up to totals due to rounding.

Chapter - 3

Profile of Ahmednagar District

- **Index :**

3.1 History

3.2 Geographical Status

Chapter - 3

Profile of Ahmednagar District

3.1 History:-

The early history of Ahmednagar starts from 240 B.C. when the vicinity is mentioned in the reference to the mauryan emperor Ashok. It was not place of any district importance but small hamlets did lie in the neighbourhood of the present city and were regarded as important by-pass places in between Junner and Paithan. It has long history of foundation and erection of the capital city of Ahmednagar B.C.90 to A.D.300 The Andhrabrity as ruled the Deccan held Ahmednagar in their sway. Western Chalukya's whose dynasty ruled from 973 to 1190 A.D. The caves and temple at Harishchandra gad in Akole Tahsil were carved and built during this period. The famous king of Yadav Ramdeorao of Deogiri ruled Ahmednagar from 1170 to 1310. The Bahamani kingdom ruled from 1318 to 1347. The Bahamani kingdom lasted for 150 years ruled by 13 kings. Burhan Nizam Shah 1508 to 1553; Husain Nizam Shah 1553 to 1565; Murtaza Nizam Shah 1565 to 1588; Miran Hussein Nizam Shah 1588; Nizam Shah 1594; Ahmed 2 1594 to 95; Murtaza Nizam Shah 1600 to 1759; The Rule of Marathas 1759 to 1817; British Rule 1817 to 1947. In such manner 46 rulers ruled Ahmednagar. On 15th August 1947 India declared an Independent Nation.

Ahmed Nizam Shah founded Ahmednagar in 1494 and therefore this city is named after his death. It was found on the left bank of the Sina river; Ahmed Nizam Shah built the present fort with mud in 1490 and Hussein nizam Shah rebuilt the fort with the present stone masonry and dug the present ditch around the fort in 1562. The whole city which was moderate in size was surrounded by walls built of stone and mud masonry below and white mud masonry above. There were 12 to 13 feet high; six feet broad and about three miles round; the walls were built about 1631 by Sarjekhan One of the Shah Jahan's nobles. There were eleven gates set in this huge circular wall. They were the Jhenda and the bare gates on the east; the Maliwada or Railway and Fergusson gates in the south; the Nepti and Nalegaon gate in the west and the Delhi, Tophkhana, Sarjepura, Mangle and King gates in the north.

It seems that the British captured this old historic city on 8th August 1803. But not without dear strife. The people of Ahmednagar were hard fighting and brave to the core. It is there ill luck that they did not find any able leader to give organized and effective resistance at that very crucial and momentous juncture. At

the same night, Ahmednagar was hornblende down from 8th August 1803 to 8th August 1942. Chacha Nehru wrote his famous book "The Discovery of India" in Ahmednagar fort.

The old Ahmednagar was quite different from its present appearance. It covered an area of six miles from the present railway station to the present town at Bhingar with its surroundings on the south and north. The Bhingar area was further extended by the cantonment area. This still is in existence.

3.2 Geographical Status:-

Chart- 3.1

S.N.	Item	Unit	District
A)	Geographical location		
1)	North latitude	Degree	18.2 to 19.9
2)	East Longitude	Degree	73.9 to 75.5
B)	Climate / Temperature		
1)	Minimum	Degree/ Celsius	19.92
2)	Maximum	Degree/ Celsius	36.38
3)	Rainfall (Average) (Separate sheet is attached here with)	MM	566
C)	Administrative Divisions		
1)	Tahsil	Number	14
2)	Panchayat Sammitties	Number	14
3)	Town (as per 2011 census)	Number	18
4)	Villages (as per 2011 census)	Number	1581
D)	Administrative Institutes		
1)	Panchayat Samities	Number	14
2)	Municipal Corporation	Number	01
3)	Nagarparishad (excluding Nagar panchyat)	Number	08
4)	Nagar Panchayat	Number	01
5)	Cantonment-Board	Number	01
6)	Gram Panchayat	Number	1310
7)	Police Station	Number	24
8)	Police Outposts	Number	38

E) Population (as per census 2011) :-

As per census 2011 the population of Ahmednagar district is 45,41,800.

F) Land :-

Chart - 3.2

Area	Hector	Unit
Total Area	Hector	1741271
Forest	Hector	151571
Under Irrigation	Hector	425100
Under Non Irrigation	Hector	133356

Sources – ZP Ahmednagar GoM

G) Boundaries:-

- 1) To the north of the Ahmednagar District lie the districts Nasik and Aurangabad.
- 2) To the east are the districts of Beed and Osmanabad.
- 3) To the south lie Solapur and Pune.
- 4) To the west lie the districts of Thane and Pune.

Statement Showing the Tahsilwise Actual Rainfall from 2005 To 2011 (Jun. to Oct.)

Chart- 3.3

(Figures in M.M.)

S.N.	Taluka	Average Rainfall	2005	2006	2007	2008	2009	2010	2011
1.	Akola	493.6	1080	1090	913	1006	549	829	500
2.	Sangamner	416.6	518	576	478	487	329	572	240
3.	Kopargaon	440.2	396	557	587	401	333	644	455
4.	Shrirampur	469.9	541	745	583	503	485	853	636
5.	Rahuri	479.7	465	777	565	651	551	866	589
6.	Newasa	513.3	479	629	391	591	456	860	474
7.	Rahata	440.2	588	690	523	385	337	814	395
8.	Nagar	524.3	491	798	631	648	563	791	374
9.	Shevgaon	563	464	703	450	473	633	824	741
10.	Pathardi	550.8	451	751	488	625	620	932	614
11.	Parner	473.9	524	843	388	388	464	604	368
12.	Karjat	505	606	746	401	763	710	729	413
13.	Shrigonda	444.8	484	505	675	448	499	710	326
14.	Jamkhed	626	634	906	628	715	615	770	712
	Total	6963	7721	10316	7792	8084	7144	10798	6837
	Average	497.4	551.5	736.9	556.5	577.4	510.3	771.3	488.3

Sources – ZP Ahmednagar GoM

- **Geographical Status:-**

The whole district forms part the treat trap region of the Deccan. Throughout Ahmednagar the trap rock is distinctly stratified and; as in the rest of the Deccan, the alternative belts of the basalts and amygdaloidal preserve a striking parallelism to each other.

Prismatic disposition is observed more markedly and perfectly in the basalt strata than in the amygdaloidal. Perfect columns are generally small, at four; or six sides, but the prismatic structure sometimes manifests itself in basaltic and amygdaloidal columns many feet in diameter; In the face of the hill at Kothul: a small village in Shrigonda twenty four miles south of Ahmednagar, there is thick stratum of close grained gray homogeneous basalt which is crowned by Temple Khandoba.

In the Water-Courses near kadus in parner are columns of basalt of bluish gray color, compact texture, Vitreous hue; and sharp fracture. At Harish Chandra gad there is sheet of rock which has the appearance of a pavement of pentangular slabs which are doubtless the terminal planes of basaltic columns. Round or oval masses of compact basalt, with concentric layers like the coasts of an Orion, known as nodular basalt are widely diffused and form another characteristic of Deccan trap information. The basaltic dykes are all vertical and do not occasion any disturbance or dislocation in the strata through which they pass. The most remarkable example is the dyke which runs vertically from east to west through the hill-fort of Harish Chandra gad. Another distinctive texture is the occurrence of strata of red ochreous rock under linking thick strata of basalt or amygdaloid. At Baragaon-Nandur in the Rahuri subdivision it is found many thick as a porphyritic Stratum with embedded crystals of lime and is used as building stone. Another distinctive feature of the Deccan trap formation is the occurrence of immense annuities of loose basalt stones of all sizes which look as if they had been showered on the land also of rock piled into heaps as if by the labour of man.

Pot holes in the rocky river beds are of freemen occurrence. Those above the falls of the Pravara, at village of Randha in the Akole subdivision, and at kind Mahuli in the kukadi river a short distance from the village Nighoj in the Parner subdivision, are specially note worthy on account of their number and size.

- **Land Forms:-**

There are various land forms in Ahmednagar district. There are hilly off- shoots of the Sahyadris in the western part of district. They are called

kalsubai, Adula, Baleshwar and Harishchandra gad hill ranger. Kalsubai, the highest peak in the sahyadris, lies in Ahmednagar district. Harishchandra gad, Ratangad, kulang and Abuja are some other peaks in the district. We see the vita ghat on the way to Randha falls and the Chandanpuri ghat on the Pune-Sangamner road. In the northern part of the district; plains are found along the bank of the rivers Godavari and Pravara and the southern part; along the rivers Bhīma, Ghod and Sina.

The different land form in a region constitutes its physical setup. If we consider the physical set up Ahmednagar district we see that there are three physical divisions.

- 1) Western Hilly Region,
- 2) Central Plateau Region,
- 3) The Region of Northern and Southern Plains.

1. Western Hilly Region:-

Akole taluka and of Sangamner taluka are included in this region. The hill ranges of Adula; Baleshwar and Harishchandra gad lie in this region and various high peaks are found in the same region. Kalsubai of height of 5427 feet; the highest peak in the sahyadris; lies in this Region.

2. Central Plateau Region:-

Parner and Ahmednagar talukas and parts of Sangamner, Shrigonde and Karjat talukas are included in this region.

3. The Region of Northern and Southern Plains :-

This region includes northern Kopergaon, Rahata, Shrirampur, Rahuri, Newasa, Shevgaon and Pathardi talukas. This is the region of the Godavari and the Pravara river basins. Parts of the southern talukas of Shrigonda, Karjat, Jamkhed are also included in this physical division. This region is basins of the Ghod, Bhīma and the Sina rivers.

• Rivers:-

The district is drained by two chief river, the Godavari and the Bhima a tributary of the Krishna. The Watershed line is the great spur of the sahyadris which branches off at Harishchandra gad and stretches completely across the district from west to east. The important rivers flowing through the district are Pravara; Mula; Sina and Dhora. Pravara is tributary of the river Godavari. Waters of the river Pravara fall from a great height, creating the Randha falls.

The Godavari, which drains by for the larger part of the district; including the tahsils of Kopergaon, Sangamner, Akole, Rahuri, Newasa,

Shevgaon the northern half of parner and parts of Nagar and Jamkhed, rises near Trimbak in Nashik on the eastern slope of the sahyadris. After passing the Nashik city it receives the Banganga and the Kadva from the north and Darna from the south and is already a considerable stream, when after course of about sixty miles, it enters north-west corner of the Kopargaon tahsil. It then flows south-east through rich alluvial plain past Kopargaon to the town of Puntamba, which is situated on the Nizam's frontier; where it receives from the south the combined water of Kat and Khara rivers. From Puntamba to a point beyond Paithan, a distance of sixty miles, the Godavari forms almost continuously the boundary between Ahmednagar and the Nizami's Dominions. At the village to Toka it receives on its right bank the combined waters of the Pravara and the Mula. A few miles below; the Shiva and Ganda join it from the left and the Dhora from the right. Two miles east of Mungi the river enters the Nizam's Dominions; and hence, flowing across the Peninsula, it empties itself into the bay of Bangal after the total course of 900 miles.

The Pravara rises on the eastern slopes of the Sahyadries between kulang and Ratangad. After the sinuous course of twelve miles in an easterly direction; near the village Ranad; it falls into rocky chasm 200 feet deep and then winds for eight miles through a deep narrow glen which opens wider Valley East of and below the central plateau on which the town of Rajur stands. Total length of Pravara is 120 miles. The dam Bhandardara is constructed a cross the river at Bhandardara, near by the Randha Falls.

The Adhala rises in north of Akole on the slopes of Patta and Mahakali. It flows for fifteen miles in as easterly direction between two ranges of hills which encloses the Samsherpur valleys then falling in to the rocky chasm some 150 feet deep it winds between rugged and precipitous hill sides for couple of miles, when debouncing in to the plain of Sangamner; it turns south and falls into pravara three miles west of the town of Sangamner.

The mahalungi rises on the southern and eastern slopes of Patta and Aundha. After the course of three miles it passes east into the Sinnar subdivision of Nashik. It reenters into Ahmednagar Division after taking bend to south.

The mula rises on the eastern slopes of the sahyadris between Ratangad and Harish Chandra gad. For first twenty miles it flows parallel to Pravara draining the Southernmost or Kotul valley of Akole subdivision. Passing the town of Kotul it takes a bend to Baleshwar. It then crosses through Sangamner, Parner. The Dam Mula is constructed across the river at Baragaon Nandur.

The Dhora rises on the slopes of the hills east of the town of Ahmednagar. It flows north easterly, draining Shevgaon and part of Newasa.

The Bhima river drains the whole of the southern part of the parner and Nager subdivisions, the whole Shrigonda and Karjat and nearly the whole of Jamkhed.

The Sina has two chief sources; one near Jamgaon fourteen miles west of the town of Ahmednagar, near Jeur ten miles to the north east. The town of Ahmednagar is built on left bank of river, which there takes south easterly curve. Leaving the district boundary it enters Solapur and ultimately falls in to Bhima.

Livestock : Dist- Ahmednager

Chart - 3.4

Ref year: 2010-11

S.N.	Taluka	Exotic / Cross Breeds				
		Above 2 1/2 year				
		Only for Breeding	For breeding / Farming	Only for Farming	Not for breeding / farming	Total
1.	Akola	69	112	1,018	19	1,218
2.	Sangamner	127	215	1,698	65	2,105
3.	Kopergaon	115	303	1,080	16	1,519
4.	Rahata	120	152	1,055	72	1,399
5.	Shrirampur	31	73	382	23	509
6.	Newasa	533	687	2,512	323	4,055
7.	Shevgaon	71	460	1,999	44	2,574
8.	Pathardi	111	205	1,743	139	2,198
9.	Nager	284	169	2,198	54	2,705
10.	Rahuri	46	72	1,474	11	1,603
11.	Parmer	237	613	2,345	78	3,273
12.	Shrigonda	255	223	896	37	1,411
13.	Karjat	540	869	1,705	488	3,602
14.	Jamkhed	98	428	657	47	1,230
Total		2,637	4,581	20,767	1,416	29,401

Sources – ZP Ahmednagar GoM

Livestock : Dist- Ahmednager

Chart- 3.5

Ref year: 2010-11

S.N.	Taluka	Exotic / Cross Breeds					
		Above 2 1/2 year				Exotic/ Cross breed of 2.5 yrs	Total Exotic /Cross breed
		In Milk	Calves	Other	Total		
1.	Akola	11,940	7,132	46	19,118	12,310	32,646
2.	Sangamner	38,642	19,934	297	58,873	39,346	1,00,324
3.	Kopergaon	15,590	13,802	16	29,408	18,388	49,315
4.	Rahata	19,222	16,783	199	36,204	19,602	57,205
5.	Shrirampur	13,119	8,722	323	22,164	13,344	36,017
6.	Newasa	16,935	13,250	232	30,417	22,517	56,989
7.	Shevgaon	9,855	6,429	91	16,375	15,219	34,168
8.	Pathardi	10,972	5,724	238	16,934	12,678	31,810
9.	Nager	14,543	8,440	96	23,079	15,192	40,976
10.	Rahuri	36,707	13,530	190	50,427	34,434	86,464
11.	Parmer	19,235	11,914	225	31,374	18,522	53,169
12.	Shrigonda	20,081	9,609	185	29,575	23,818	54,804
13.	Karjat	9,004	6,599	173	15,776	12,683	32,061
14.	Jamkhed	7,869	4,162	53	12,084	9,433	22,747
Total		2,43,714	14,730	2,364	3,91,808	2,67,486	6,88,695

Sources – ZP Ahmednagar GoM

Veterinary Institute : Dist- Ahmednager

Chart- 3.6

Ref year: 2010-11

S.N.	Taluka	Squad / checking	AI Center	AI Sub Center	Breeding Farm	Bull Breeding Farm	Goat Breeding Farm
1	Akola	0	29	0	0	0	0
2	Sangamner	0	24	0	0	0	0
3	Kopergaon	0	11	0	1	0	0
4	Rahata	0	16	0	0	0	0
5	Shrirampur	0	10	0	0	0	0
6	Newasa	0	15	0	0	0	0
7	Shevgaon	0	15	0	0	0	0
8	Pathardi	0	16	0	0	0	0
9	Nager	0	20	0	0	0	0
10	Rahuri	0	15	0	0	0	0
11	Parmer	0	20	0	0	0	0
12	Shrigonda	0	17	0	0	0	0
13	Karjat	0	12	0	0	0	0
14	Jamkhed	0	11	0	0	0	0
Total		0	231	0	1	0	0

Source - Dept of Dairy Development, ZP Ahmednagar.

Village Dairy Co operative Societies : Dist- Ahmednager

Chart- 3.7

Ref year: 2010-11

S.N.	Taluka	No. of Coop. STY	No. of Members	Total Milk collection in the year		Total No. Cold Storage	Capacity of Cold Storage (Ltrs.)
				Total Ltrs.	Per day Ltrs.		
1	Akola	213	10863	19375	5	2	60
2	Sangamner	242	12342	75071	206	1	100
3	Kopergaon	129	6579	39178	107	1	100
4	Rahata	120	6120	53954	147	1	100
5	Shrirampur	99	5049	591	17	0	0
6	Newasa	107	5457	249	68	1	50
7	Shevgaon	139	7089	4046	11	1	10
8	Pathardi	177	14127	14609	40	2	30
9	Nager	222	11322	3215	9	3	120
10	Rahuri	186	9486	9118	25	1	20
11	Parmer	310	15810	1384	38	2	20
12	Shrigonda	177	9027	10768	30	1	20
13	Karjat	452	23052	22506	62	2	30
14	Jamkhed	126	6426	4041	11	1	20
Total		2799	142749	258105	824	19	680

Source - Dept of Dairy Development, ZP Ahmednagar.

Chapter - 4

Formation and Development of BAIF

- **Index**

- 4.1 Formation
- 4.2 BAIF Mission
- 4.3 The BAIF Logo
- 4.4 Goal
- 4.5 A Research Over View: - 2010-2013

Chapter - 4

Formation and Development of BAIF

4.1 Formation:-

BAIF Development Research Foundation is a Voluntary Organization established in 1967 registered as a Public Charitable Trust, BAIF is committed to sustainable rural development; its founder noted Gandhian late Dr. Manibhai Desai, firmly believed that development without research is not progressive and research without development is an academic exercise. Therefore; BAIF research programme identifies and tests suitable technologies under environmental and social conditions before introducing them to rural communities. The programme out reach of BAIF touches more than 2.5 million rural formalities in about 45000 villages in 12 states of India. Its integrated development strategy comprises of activities for livestock development tree based farming, water resource management, Community health and environmental protection. Associate organizations of BAIF programmes with a focus on local requirements.

4.2 BAIF Mission:-

BAIF'S mission is to create opportunities of gainful self employment for the rural families, especially disadvantaged sections, ensuring sustainable livelihood, enriched environment, improved quality of life and good human values. This is being achieved through development research; effective use of local resources, extension of appropriate technologies and up gradation of skills and capability participation. BAIF is a non political; secular and professionally managed organization.

4.3 The BAIF Logo:-

The BAIF Logo is a symbol representation of the mission of BAIF in Rural Development. It is a visual portrayal of the four important natural resources-land; livestock, water and vegetation. "Anna Bahu Kurveet Tadh Vratam" testifies BAIF'S commitment to the conservation of these precious resources and abundant crop production. The Crossbreed cow strategically positioned; signifies the efficient conversion of coarse fiber from straws of sorghum, millet, bajra and wheat into milk a major source of protein in the diet of the per rural people; without compromising on food grain production. That milk is a product of the earth is symbolized by the two milk bottles embedded in the soil. The microscope

reiterates the role of research in rural development. The wheel symbolized the blend of science and technology and an industrial approach towards agriculture. The petals of the lotus form a ball and are synonymous with rural prosperity.

4.4 Goal:-

BAIF'S target was small and marginal farmers and socio-economically weaker sections of the society. The goal was to improve their quality of life by promoting gainful self-employment and bringing them out of poverty. The proposed action was to promote sustainable livelihood through agricultural development. Core resources which were critical for increasing agricultural production; priority was given to livestock development particularly dairy husbandry, which would benefit a majority of the small farmers. India had the largest cattle population but the average milk production was low. Every community accepted dairy husbandry. Like a staple source of protein was in severe shortage. Hence there was good potential to take us breed improvement using the non-descript, unproductive cattle, to enhance milk production while promoting sustainable livelihood for small farmers. Thus the initial programme was to promote cattle development as illustrated in BAIF'S logo. With income generation; promotion of community health; education and good moral values were also considered essential for better quality of life. These are critical to achieve the millennium development-goals as well.

4.5 A Research Over View: - 2010-2013

- **Livestock:-**

Livestock development being the premier activity of BAIF; research on various aspects of cattle rearing has been carried out since the establishment of the organization. In the initial years; research focused on the adaptability of crossbreed of different exotic blood levels to local conditions. In order to address the constraint of fodder in the operational areas of BAIF, a strong fodder research programme emerged.

- **Crossbred Cow:-**

During his conversations on rural development; Manibhai had told Gandhiji that khadi, which was promoted for generating gainful employment could not provide adequate income to meet both ends of the family in spite of a person working for the whole day. In reply, Gandhiji had said "If you find a better alternative, you can replace the Charkha Spinning wheel; with it. Later, Manibhai had successfully promoted the cultivation of high yielding varieties of food crops; vegetables; and Grapes around Uruli Kanchan. However, his

experience in maintaining a Gir herd of cattle for milk production, posed a problem of economic viability. Although the herd of elite Gir cows housed in the Ashram, won many prizes for their outstanding performance in milk production, the dairy unit was in loss. This forced Manibhai to study animal genetics and management finally, leading Veterinary Scientists pointed out the genetic drawback. This led Manibhai to launch an experiment of crossbreeding Indian cattle with exotic breeds. The crossbreds born to even poor yielding non-descript cows; produced 2000-3000 liters of milk per lactation. He was then convinced that crossbred cows have the potential to provide gainful self employment to the poor. So he was ready to replace the old wooden charkha with a modern charkha the crossbred cow; which is considered as kamdhenu by farmers. (kamdhenu- a divine cow which was believed to be the mother of all cows; one who fulfils desires) with this tool; he decided to reach millions of rural poor for promoting gainful self employment. Thus BAIF was born. On fodder trees; this eventually expanded in to the programme on multipurpose trees. Animal nutrition and health received priority as these were major areas of concern under most small farm conditions.

Subsequently, considering the potential of other farm animals in Comprehensive rural development programmes, research on buffaloes and small ruminants were initiated. The principal objective of research during the initial years of the organisation was to address field requirements of BAIF projects. Thereafter, studies on broad scientific interest were included in the research programme. A major initiative in this regard was the genetic characterisation of native breeds with the aim to conserve them. The growth of BAIF'S cattle development-programme; which reached out to a large member of village in country thorough cattle development-centers, provided opportunities for socio-economic studies and impact analysis more recently, research on advanced themes like embryo transfer and molecular biology have been initiated so that the latest technologies can be made use for the upliftment of the most disadvantaged sections of the population.

- **Breeds, Breeding and Reproduction:-**

"Dangi" is a native cattle breed of Maharashtra and its distribution at present is restricted to Ahmednagar and Nashik districts of Maharashtra and Dangs districts of Gujarat. It is adapted to the hilly terrain and heavy rainfall of the area. Genetic characterization of this breed was done to help conserve and improve its productivity. The milk yield per day ranged from 1.5 to 2litre with an average of 1.75litre per day. The average age at first estrous; first mating and first calving were at 43 to 44 months. The mean interval between calving to

first conception was 295 days and the mean duration of estrous cycle was 20.5 days.

Another initiative was to produce embryos for high performing pure breed Dangi cows to multiply superior animals through embryo transfer and make them available for breeding. Superior Dangi cows were identified and brought to the BAIF central Research Station at Urli Kanchan near transferred to recipients or frozen and stored. Frozen semen of promising young Dangi males was used produce 269 male and 283 female calves. These female calves are raised as bull mothers and transferred to potential breeders at the village level. The bull calves produced by embryo transfer were raised as breeding bulls and their semen frozen and used later for insemination for conservation and improvement of the breed. Sexing of 62 embryos found 42 to be female and the remaining male. In an attempt to extend this technology to the field, in donors were flushed and 34 viable embryos were harvested. Conception rate was 45% for fresh embryo transfer and 24% for frozen embryo transfer.

The feasibility of embryo transfer in buffalo was examined by synchronizing with two prostaglandin in sections administered 11 days apart.

Goats are an integral component of farming systems in Rajasthan. The extensive area of ravalli animals. Sirohi is a goat breed found in a few districts of Rajasthan. The performance of Sirohi goats was evaluated in Bhilwara, Udaipur and Rajasamand districts of Rajasthan. Both sexes of Sirohi backward. Other characteristics are the flat; leaf like medium sized drooping ears, long neck with some goats bearing wattles and a bend or sword like curved body. The tail is medium in length and curved upward; udder small and round and teats placed laterally. The mean estimated lactation milk yield ranged from 102kg to 107 kg during a period of 164 days. In general breeding was during the summer months of May-June. Farmers generally maintain the breeding buck in their flock and change it every 3-4 years.

- **Health:-**

The rapid growth of the livestock industry has resulted in increased incidence of brucellosis, which adversely affects animal production and development. The highest incidence of brucellosis situation in Maharashtra is not well documented; a study was conducted to examine the incidence of brucellosis in animals and women who manage them. Blood samples were collected from 3525 animals and 962 human beings. Analysis of samples showed the prevalence of brucellosis to be 3.5% in animals and 1.7% in human beings. The total livestock population was 12,925 in the surveyed households, of which 36.3% was cattle, 5.8% buffalo and 57% small ruminants. Large

ruminants are found in 1,328 households and about 70% of them are artificially inseminated. Abortion is a serious problem reported by 38% of the farmer. The highest abortion of 44% was at advanced pregnancy.

Remedial measures against helminthes found in the intestinal tract of cattle and buffalo was investigated by the Manibhai Desai Technology Transfer centre in Navsari district of Gujarat; Faecal examination showed 40% of cattle and 43% of buffalo having helminthes infection. The incidence of the problem was higher in hilly areas (45%) than in plains (34%). Female cattle and buffaloes appeared to be more susceptible than males. The severity of Infection was 39% in calves below one year, 34% during 1-3 years and 41% in animals more than three years old.

- **Nutrition:-**

Mother liquor and sludge are by products of the milk processing industry. In developed countries; mother liquor is fed as a supplement to dairy cattle and pigs while sludge is used as manure. Both of them are also used in the preparation of complete feeds on farm studies on lactating cattle with mother liquor based complete feed and sludge showed an increase of 1.5 kg in average daily milk yield compared to the traditional feeding method. The average milk yield in control and experimental groups were 9.44 kg and 10.95kg/day; respectively. The higher milk yield of the experimental group could be attributed to the presence of high levels of dry matter and lactose in this feed. The above studies show that mother liquor and sludge can be successfully incorporated in the diet of lactating cows.

- **Fodder Production:-**

Rearing crossbred cows and buffaloes is emerging as a major occupation of farmers in western Maharashtra; but only 3% of the required fodder is produced by them. As off farm sources are dwindling, fodder crops have to be included in the cropping pattern. Therefore; trials were conducted to identify suitable cropping patterns that can produce fodder rich in protein. Patterns with cereals and legumes in several combinations were investigated at BAIF CRS. Maize; Sorghum; Pear Millet and Cowpea were harvested at the 50% flowering stage with a single cut whereas Berseem was harvested thrice at 55-60 days after sowing and subsequently at 22-25 dry intervals. Pooled data of five years indicated that the cropping pattern with berseem in rabbi, sorghum in summer and maize in kharip produced the highest maize fodder equivalent yield, which resulted in the highest gross monetary return. The soil fertility status was also improved by this cropping pattern.

- **Compost Making:-**

Low soil organic matter content adversely affects soil fertility in dry land soils. Sustained application of organic manure can partly overcome this problem; but its availability is low. Farmers in many countries have successfully used the technology of effective micro organisms for biomass recycling. Experiments were conducted at BAIF CRS to study the potential of compost made with Em.

Soybean husk was composted with Em solution as the microbial enhancer. The application rates were 2.0 t/ha for both Em compost and Farmyard manure on a low organic matter gravelly soil. At these rates; both compost and farmyard manure were inadequate to increase the yields of onion and soybean in the first and second seasons of application. During subsequent years; however; favorable effects of Em compost on crop yields were apparent and it continued in to the next season. This shows that even relatively small quantities of organic matter enhance crop production if fortified with micro organisms and applied at regular intervals.

- **Waste Recycling:-**

Economic development is associated with the generation of enormous quantities of solid waste. Fly ash produced by thermal power stations and sludge in city sewage are solid wastes that have to be managed and disposed off continuously. Both fly ash and sludge contain crop nutrients. Experiments were conducted for four seasons at BAIF CRS to study the effect of recurring applications of fly ash and sewage sludge on the growth and yield of French bean; soya bean and radish. The effect of dairy sludge on growth, yield; fodder quality and chemical composition of soil was investigated at BAIF CRS sludge application significantly improved crop performance.

- **Extension:-**

Agricultural extension services in India are provided by government agencies, research institutions, grower co-operatives and non government organizations. A crucial role is played by NGOS in achieving Food sufficiency through agricultural extension support to farmers in remote areas. Technology transfer is affected through different formations of farmers slab. Farmers clubs motivated the members to take action that resulted in speedy adoption of latest agricultural technologies. They acted as pioneers in providing information of new strategies of agriculture and explained complicated to picks in simple language that helped improve the practices adopted by farmers.

- **Conservation:-**

The conservation of animal genetic resources has become an issue of importance all over the world. Different breeds of livestock were evolved through selection since ancient times to meet human needs. Unfortunately, there has been serious erosion in germplasm resources of domesticated animals during the last century. It is globally accepted that live stock breeds should be considered a heritage and accorded protection and conservation. Although live animal conservation has many advantages like improvement of the breed over time and purification of breed from unwanted traits, it is very expensive because of the number of animals to be maintained. Alternatively, cattle and buffalo germplasm can be conserved in the form of semen and embryos with the use of modern tools of biotechnology.

National Bureau of Animal Genetic Resources sponsored a project for the germplasm conservation of Jaffarabadi buffalo and similar project for Krishna valley cattle. The main objective of both projects was to conserve germplasm of elite unique animals of the designated breeds in the form of frozen semen. It envisaged procuring to entry unrelated young male progeny of elite animals from the breeding tract of each breed and maintaining them for one year. These males are to be trained to donate semen. At the rate of 2000 semen doses, the 15 males will produce 30,000 doses, which will be cryo preserved and handed over to their bank. The male progeny of elite mothers will be extensively used for breed improvement in their respective tracts.

- **Murrah Buffalo:-**

Buffalo milk production is important traditional occupation in many parts of the country. It is a major source of income for many households. In recognition of the need to improve the productivity of buffaloes, the scope of work to be undertaken has been emphasized in the National project on cattle and buffalo breeding. Considering the low productivity of buffaloes in eastern and central Uttar Pradesh and the scope for their improvement, a project for their genetic improvement-through progeny testing of bulls was initiated in 10 districts of Uttar Pradesh. The objectives of the study are to select superior Murrah Buffalo bulls and provide their germplasm for improving milk yield.

- **Ongole and Gir Cattle:-**

Ongole and Gir are promising cattle breeds of India, but their genetic diversity has not been adequately studied. Studies in relation to biotechnological interventions such as embryo transfer can help assess and exploit the full potential of this breed. Therefore, research was conducted with

the overall objective of conserving the genetic variability of Ongole and Gir breeds. Individual studies examined embryo yield of donor cows; the potential of increasing the number of viable embryos and the semen behavior of bulls.

- **Holstein Friesian Cross Bred Bulls:-**

Holstein Friesian (HF) is extensively used for cross breeding of cattle. A very high blood level of this breed can lead to deterioration in the performance due to poor adaptation of feeding regimens. Unsatisfactory management practices and unsuitable climatic conditions. It is necessary to use genetically superior cross bred bulls in breeding programmes. In such context, the selection of breeding bulls on the basis of their performance of female progeny is essential to maintain and improve milk production. Therefore, an ad-hoc research scheme was initiated by the Indian Council of Agricultural Research in 1985 for progeny testing of cross bred bulls under village conditions. Following the establishment of the project Directorate on cattle, these researches become a coordinated network project with necessary modifications in the technical programme.

Mixed production systems having crop and livestock components are dominant in many developing countries, including India. Dairy farming in such systems can increase household income and contribute to poverty alleviation. Variable success in the transfer of dairy technology has clearly shown that adoption is context specific, related to the physical and socio economic environment, access of farmers to resources, access to information and personal attitudes. These considerations were incorporated in a series of concepts and methods to replace narrow technology durations approaches with broader ones such as farming system Research. BAIF'S livestock development experiences in Maharashtra; Gujarat, Uttar Pradesh, Madhya Pradesh and Karnataka were analyzed with the use of FSR methodology.

Total livestock population, comprising of defined and undefined breeds; increased annually by more than 1% in the last four decades; with buffalo and goat populations increasing faster than cattle. Analysis and modeling indicated limited genetic potential of local breeds and shortage of feed resources, both quantitatively & qualitatively, as major constraints to livestock development. Cross breeding for breed improvement and use of improved local feed resources were identified as suitable technologies to alleviate these constraints. Ex-post performance monitoring of some BAIF crossbreeding programmes show that crossbred cattle fitted well in the smallholder mixed farming systems of both tribal and non tribal farmers in all three selected agro-ecological zones taken for the study. Milk production of cross breeds was substantially higher; as

was livestock gross margin and house hold income. Although quality of the roughages is a major factor, farmers owning crossbreds tried to adjust to the needs of the cows by feeding concentrates. There was no difference in the workload and division of labour between households with and without crossbreds. Crossbreeding thus proved a techno economically and socially viable livelihood option for both mixed and land less farming systems.

Various modeling approaches were used to examine the suitability of feeding technologies such as Urea supplementation, use of local and commercial concentrates, Urea treated straw with concentrates; and Lucerne tree leaves for crop livestock systems major conclusions were that

- 1) Concentrate feeding is beneficial to farmers with market access and crossbred cows,
- 2) Cross breeding is more remunerative for landless and tribal farmers than for non-tribal farmers while feeding interventions are more effective for crossbreds than for local cows,
- 3) Highest farm income is achieved medium level of milk yields/animal because high milk yields require the use of quality feed; which renders straw lessing its value as feed; this would result in the cropping pattern shifting from gain crops to cotton.

During a period of about 30 years, three phases in on field testing can be distinguished in BAIF'S livestock programme the initial period of predominantly top-down approaches, the second phase with emphasis on participatory identification and testing of technologies, and the third phase with work at community and water shed level. The study showed that adoption of technologies is facilitated when it involves local feed resources that are readily available and requires only small changes in farm practices. The dynamics in approaches involves the comparison of top down; objectivist and reductionist approaches on the one hand and bottom up, constructivist, holistic and self-organized approaches on the other.

In conclusion, development is a continuous process in which goals change over time and space. If development is indeed a dynamic process, it implies that choice of methodology and development behaves as a complex adaptive system with its own dynamics and associated paradigm shifts. Because it is a complex adaptive system, development organizations such as BAIF have to show a dynamic behavior to deal with continuously changing situations.

4.6 Central Research Station (CRS):-

The BAIF Central Research Station (CRS) was established at Uruli Kanchan, 30 km from pune, in 1970, on a campus, spread over 200 hector for conducting problem oriented research, developing suitable technologies useful for small farmers, organizing training.

The central cattle breeding farmhouse has 515 animals consisting of HF and Jersey female, bulls and bull calves of various breeds of cattle and buffaloes. The ISO certified frozen semen laboratory has produced 75.6 lakh semen doses from 226 bulls of purebred exotics (Holstein and Jersey), crossbred (Bulls resulting from crosses between local and exotic), indigenous (Sahiwal, Gir, Khillar, Amritmahal, Hallikar, Tharparkar, Dangi, Ongole and buffalo (Murrah, Mehsana, Surti, Jaffarabadi, Banni, Bhadavari, Pandharpuri). About 35% of the quantity is supplied to BAIF'S associate organizations and the remaining semen doses to various state Governments, Co-operatives and others.

The embryo transfer lab engaged in embryo freezing and training is recognized for embryo transfer technology by the Govt. of India. Standardization of a technique for generating transgenic buffalo has been undertaken with the Support of DBT. The molecular Genetic Laboratory with Automated silencer is maintaining a DNA bank with 4000 samples of various breeds, useful for market Associated selection on basis of genetic disorders used for screening bulls for semen collection. The Reproduction Biotechnology laboratory with IVF facility has carried out karyo tying of 208 samples from CRS and various state Departments.

Study on Identification of Quantitative Trait Loci of milk yield, fat and protein in Murrah buffaloes has been undertaken under NAIP component 4 of ICAR. Under this project, frozen semen of 12 buffaloes was used for breeding local buffaloes and blood samples of over 10,000 female cows have been collected for percentage testing. Phenotype recording of over 5000 calves has also been carried out. Based on the work; genotyping of 40 micro satellite markers have been identified on selected chromosomes. The study is being continued for gene mapping. The Genetics Department carried out ex-situ conservation of Krishna valley breed. As a result of greater awareness, many farmers demanded frozen semen of this breed for inseminating their cattle.

The progeny performance recording of first 4 bull batches of HF crossbred bulls has completed its milking and average performance of 2039 progenies born out of 79 sires was 2929.10 kg. The milk recording if progenies born out of sires from 5th and 6th batches are in progress with support from the Department of Biotechnology, Government of India, semen of selected Tharparkar bulls was

frozen and used to improve local cattle through 5 cattle development centers in Nagour district. Under the AICRP on improvement of feed resources and nutrient utilization, mineral mapping of solapur district was under taken. The Animal Nutrition Division is involved in developing various kinds of feed and feed supplements. The mineral mixture division has produced 30 tones of mineral mixture for in house consumption and distribution to farmers.

Under the all India coordinated project of ICAR on Forage crops, breeding of forage crops such as maize, pearl millet and Lucerne is in progress. Newly collected land races of maize were evaluated and two of them have been taken for breeding with promising varieties. 17 coordinated trials in breeding and field testing were under taken. Technology in fodder production of kharip and rabbi forages was promoted by establishing 35 field Technology Demonstrations in the field. Seed production programme of maize African tall, BAIif Bajra-1 and Cowpea UPC 9202 was under taken in kharip followed by Lucerne RL 88, barseem warden and Oats Kent in rabbi. 25.18 tons of Breeders, Foundation, certified and truthful grade seeds were produced, processed and distributed to farmers. 36 lakh plantlets of Hybrid Napier, Guinea grass and cenchrus grass were supplied to farmers.

The vermin compost unit engaged in technology development and promotion through training and demonstrations for farmers. Particularly the women belonging to SHGS. During the year 11,000 liters of bio fertilizers and bio control agents were produced with hands on training of 50 undergraduate and postgraduate students. The Community Health Research centre is facilitating over 200 women SHGS in 60 villages in Pune district and adjoining areas to pursue various community development and income generation activities. 2415 women have enrolled in the community based health insurance scheme. Diagnostic services for the local communities are being provided through a well equipped laboratory.

Chapter - 5

BAIF and Dairy Development

- **Index :**

- 5.1 Introduction
- 5.2 Dairy Husbandry
- 5.3 Capacity Building
- 5.4 BAIF Impact
- 5.5 Dairy Development
- 5.5 Research and Technological Development

Chapter - 5

BAIF and Dairy Development

5.1 Introduction:-

India has a long history of voluntary action. The Freedom struggle was ingeniously dovetailed with various programmes for constructive activities by Mahatma Gandhi. As a result, during the independence struggle as well as in the post Independence era; various constructive development initiatives were spawned across the country.

- **Seeding of BAIF:-**

One seed sown by Mahatma Gandhi was the Nature Cure Ashram at Uruli kanchan, Tal Haweli Dist Pune. Manibhai Desai; a young associate of Gandhiji was entrusted with the responsibility of nurturing this seed. Manibhaiji's own insightful understanding of the rural needs and the social dynamics led him to work on various community development initiatives, many of which were firmly anchored in the application of science and technology. This led to very encouraging results in the areas of livestock development; water management; reclamation of saline soils and introduction of horticulture and led him to conceive the idea of a unique bold initiative the establishment of an organization called Bhartiya Agro Industries Foundation. Thus BAIF was shaping below the surface during the 20 year work of Manibhaiji at the Ashram BAIF which was inaugurated as a concept to provide gainful self employment and sustainable livelihood for the rural poor on August 24, 1967. Although dairy husbandry through upgradation of local cattle was an entry point, over the years, looking to the needs of the rural communities, BAIF kept on introducing new activities which emerged as a multidisciplinary holistic programme. While addressing these development issues; BAIF strongly believed in blending research and innovative technologies to address emerging field problems. In 1969; Tristram Beresford, chairman of Britain's Agricultural society, visited Uruli kanchan and unknowingly became the catalyst to project BAIF on to the national and international scene. Although he had come for a brief look at the dairy herd; Beresford found time to visit the rehabilitated farmland at Bhavarapur and the rest of the Ashram's projects. Deeply impressed with what he saw, he offered to help raise funds for the Ashram. More importantly he produced, through the British milk marketing board; a consignment of 7000

doses of frozen semen from top quality Jersey and Holstein-Friesian bulls for the cattle project. With the acquisition of frozen semen; BAIF ceased being merely a concept and became a functioning organisation. Six veterinarians were hired and assigned to local centers that were established and supported by the sugar co-operatives. Local cows belonging to individual farmers were inseminated in order to produce high quality crossbreed animals. From cows which gave less than 200 liters of milk in lactation, were bred cows that produced 2500 liters. Poor cows which had been a liability to farmers were converted into economic asset. The new crossbreeds are known as kamdhenu. Insemination and crossbreeding with superior heifers was founded over the next few years by the Church of Scotland and the Danish International Development Agency. The veterinarians at the local centers also trained farmers in the care of these improved animals. The concept of bringing modern technology to the door of the farmer, instead of having the farmer go to a regional centre, was an essential component of Desai's development philosophy. His concern was always to simplify and humanize the development process. Two subsidiary research centers were established under the BAIF umbrella in 1971. The Research Institute for Cattle and Agricultural Development was started in Maharashtra on 40 hectares of land donated by the Govt. it has now 120 hectares. Supporting the development institute is the research institute for animal health. With a donation of equipment from DANIDA, the latter began producing vaccine for foot and mouth disease in 1977. This makes BAIF a unique research organization committed to sustainable development. The organization has now matured further and operates programmes in 15 states of India. It has contributed in novel ways to develop action through path-breaking programme ideas with a strong base of science and technology and professional action; while yet preserving the Gandhian values of people centered development, mass-based programmes and humanism. The organization is continuing to evolve and looks forward to contributing to emergent future needs of the society.

5.2 Dairy Husbandry:-

BAIF'S strategy was to build on what the poor already had; after carefully studying their problems and capabilities to take up new initiatives. The programmes had to be labour intensive with low capital investment for employment generation by rural masses. Hence BAIF decided to promote genetic improvement of the non-descript low yielding cattle and buffaloes by providing breeding services at the doorsteps of farmers, using frozen semen technology. Hence an established at Uruli Kanchan with the support of the Danish International

Development Agency under bilateral assistance, in 1970-71, later in 1974, the Canadian International Development Agency and Canadian Hunger Foundation provided support to strengthen the exotic herd. The frozen semen production laboratory was established in 1975, several co-operative sugar factories in western Maharashtra come forward to support BAIF to sponsor cattle development centers for the benefit of their farmer members. Convinced of the benefit of this programme. The Government of India extended support to expand the programme across the country under the integrated rural development programme in 1979. Health care and nutrition management being important factors affecting the profitability of dairy farming; various support services were introduced. The Animal Health laboratory was established at Wagholi near Pune with the support of the Government of Maharashtra and DANIDA to produce various vaccines required for protecting the livestock. National Institute for Agricultural Research France provided additional technical support. BAIF vaccines were able to reach the interior hamlets at substantially low prices in spite of severe competition from the multinationals. By 1996, there were many players; both Indian and multinationals engaged in production of vaccines and biological and thus BAIF decided to withdraw from the activity and concentrate on development in the field.

Technologies were developed for improving the nutritional quality agrees by products and to establish decentralized complete feed units to ease the supply of feeds. Under the coordinated forage research programme of Indian Council at agricultural research, drought tolerant fodder crops were developed and seed production of superior forage varieties was undertaken for distributing to farmers. The farmers were encouraged to cultivate drought tolerant non- traditional forage crops such as subabul on west lands. Silvipasture development was promoted on community pastures through active involvement of the local communities. The programme demonstrated the economic viability, conservation of soil and water and promotion of biodiversity. This motivated the Government of Rajasthan and other donor agencies to take up wider replication of the programme.

While promoting community pasture development, a concern was expressed about the eroding income of goat keepers. Its goats had replaced large livestock in many drought prone areas, goats were branded as anti-environment and goat development was ignored. Realising the plight of goat keepers, BAIF developed an innovative programme in Rajasthan and West Bengal improve the breed and productivity, while involving the community to control the population; depending on the carrying capacity of the partners. Further efforts in health care and feed management through self help groups demonstrated the feasibility of enhancing the income by three folds without denuding the ecosystem. This programme is now being replicated in other states.

5.3 Capacity Building:-

Dr. Manibhai Desai had a strong desire to impart management skills to rural development workers at the grassroots level. As there are no organized courses to train educated professionals the Dr. Manibhai Desai management training centre has been established in Pune. Special tailor-made courses are designed to impart capacity building by sharing the experiences of BAIF. BAIF has also established campuses for organizing research; training and demonstration at Uruli kanchan (Maharashtra), Lakkihalli (Karnataka), Vansada and Nanodra (Gujarat) and krishi vigyan kendra at Chaswad in Bharuch district of Gujarat to develop appropriate technology and impart training to field technicians and farmers. Establishment of people's organizations at the village level has been the key to empowering local communities while ensuring sustainability of the programme. These organizations are in the form of self help groups of women and men, block level federations and user groups engaged in various income generation activities. Presently out of the 10,000 self help groups, 80% are represented by women who are engaged in micro-finance, micro-enterprises and programmes of the Panchayati Raj Institutions.

5.4 BAIF Impact:-

Over the last four decades; BAIF'S programmes have spread over Maharashtra, Uttarakhand, Rajasthan, Punjab, Uttar Pradesh; Bihar, west Bengal, Orissa, Jharkhand, Chhattisgarh and Tripura states and made a significant impact in promoting sustainable development impact in rural India. The programme has reached 4.5 million below poverty line families across 15 states in 67,000 villages. 0.75million crossbred cows born under the programme, each cow worth Rs: 25,000-35,000 are producing milk worth Rs 2500 crores. The programme has been promoting nutritional security, organic farming and ecosystem improvement. Over 70% of the farmers associated with this programme for over 5 years, are able to earn an annual income of Rs 45,000-55,000. 0.4million hactor lands under water shed development, is benefiting 97,000 families in 961 villages. 56000 hactor low productive lands covered under agri-horti-forestry popularly known as wadi programme, 85% of the participating families in the cluster development programme have come out of poverty, while enjoying improved quality of life through women's empowerment and community health initiatives. Environmental protection through sustainable agriculture, water and soil conservation, genetic improvement of livestock, industrial greenbelt and environmental awareness are the indirect benefits of the multidisciplinary programme. The sustainability of operations is being ensured through linkages with financial Institutions and markets, Panchayati, Raj Institutions, Development Department of the Govt and other organizations.

After 47 years, a strong team of 4000 dedicated youth is the strength of BAIF. Flexibility of the programme to reach the poorest of the poor and willingness to accept new challenges, a strong sense of economics and our ability to demystify complex technologies in to user. Friendly activities, has been the key to success. A gradual shift from free service to self- managed service by the community is out withdrawal strategy. Development of strong grass root level by the community is out withdrawal strategy. Development of strong grass root level organisations particularly through empowerment of women; is the secret of sustainability.

Since independence, the Govt. of India has given top priority to rural development, as over 40% rural population being poor is struggling for survival. Realising the need to create suitable livelihood opportunities BAIF has been facilitating the weaker sections of the rural society to earn sustainable livelihood. Rural poor are be signed with serious challenges ranging from physical poverty to psychological poverty. They are also deprived of health care; education, social status, access to information and modern technologies; infrastructure and managerial skills, resulting in lack of confidence; mistrust of outsiders and huge financial liability. Over the last four decades, BAIF studied their chronic problems and identified suitable interventions at the family level; converging livelihood programme with health; literacy and moral development to ensure better quality of life. Starting with cattle development as a majority of the rural families are dependent on livestock for their livelihood, BAIF introduced other supporting agro based activities such as water resources development, potable water supply and sustainable agriculture resulting in gainful self employment and feed security. While working in the core development sector; special thematic areas have been identified to explore the scope for developing appropriate technologies and approaches in desert and arid regions; hill areas and tribale areas. For implementing these programmes; BAIF has adopted a strategy of blending applied research and training with development activates for effective transfer of technologies, the participant families are empowered through promotion of people's organizations for efficient forward and backward integration for improving the value chain and to work in close association with various development agencies.

The livestock development programme for promoting dairy husbandry, launched in early 70's serves over 4.4millions families through 3500 cattle development centers in 80,000 villages in Maharashtra, Karnataka, Gujarat, Rajasthan, Punjab, Uttar Pradesh, Uttarakhand, Madhya Pradesh, Andhra Pradesh, Bihar, Odisha, and Jharkhand. An integrated development programme has been launched in Orissa with the establishment of 100 cattle development centres spread over 10 districts, to improve dairy husbandry forage development and sustainable

agriculture to support the livelihood of socio economically disadvantaged communities.

5.5 Dairy Development:-

India has the largest cattle population in the world, the average milk yield is less than 900 kg per lactation due to poor quality animals which pose pressure on natural resources and the environment. To transform this problem in to an opportunity, BAIF has been providing breeding and critical support services at their doorsteps, enabling poor farmers to produces high yielding animals and to pursue dairy husbandry as a source of livelihood. The dairy husbandry programme launched in the early 70's as the flagship programme of BAIF; is operating in 239 districts of 12 states. Out of the 3300 cattle development centers, 192 centers are sponsored by ITC ltd. A new service model project Godhan supported by the Bill and Melinda Foundation is delivering critical inputs to 86,000 poor families through 170 cattle development centers in Maharashtra Bihar and Uttar Pradesh. 360 centers have also been established under the revenue model; named ksheeradhara with the credit support from NDDB. The Punjab state co-operative milk producer's federation invited BAIF to establishment 100 centers with special focus on buffalo development. Considering the benefits of BAIF programme for the poor; the Government of Jharkhand extended support to expand the programme across the state to establish 500 additional centers.

During the year, 2.21 million AI were achieved with 48 to 55% of conceptions. Presently, 0.8 million cows and buffaloes are under milk production, producing milk worth Rs 2800 crores per annum. For many of the small holders and landless, particularly women, goat has turned out to be an important source of livelihood. However, in the absence of critical services; they were unable to earn significant income. Addressing this challenge, an eco-friendly goat development programme was implemented in west Bengal benefiting 10,000 families. The programme has now been expanded to Rajasthan, Jharkhand, Maharashtra, Orissa and Tripura, benefiting 75,000 families. BAIF is also participating in an international goal development programme launched by ILRI in Rajasthan and Jharkhand with a focus on value chain development.

5.6 Research and Technological Development:-

Research and Technology Development are integral parts of development on station and participatory on farm research with active involvement stakeholder. The central Research station at Uruli kanchan Dist Pune have 515 animals consisting of HF and Jersey female, bulls and bull calves of various breeds of cattle and buffaloes. The ISO certified frozen semen laboratory has produced 75.6 lakh

semen doses from 226 bulls of purebred exotics HF/ Jersey crossbred indigenous and buffalo. About 35% of the quantity is supplied to BAIF'S associate organisations and the remaining semen doses to various state Govts; Co-operatives and others. The ET lab engaged in embryo freezing and Training is recognized for embryo transfer technology by the Govt of India. Standardisation of a technique for generating transgenic buffalo has been undertaken with the support of DBT. The molecular Genetics Laboratory with Automated sequencer is maintaining a DNA bank with 4000 samples of various breeds, useful for marker assisted selection on basis of genetic disorders used for screening bulls for semen collection. The Reproduction Biotechnology laboratory with IVF Facility has carried out karyotyping of 208 samples from CRS and various state departments. Study on identification of Quantitative Trait loci of milk yield, fat and protein in murra buffaloes has been undertaken under NAIP component 4 of ICAR. Under this project; frozen semen of 12 buffaloes was used for breeding local buffaloes and blood samples of over 10,000 female cows have been collected for parentage testing. Phenotype recording of over 5000 calves as also been carried out. Based on the work; genotyping of 40 micro satellite markers have been identified on selected chromosomes. The study is being continued for gene mapping. The Genetics department carried out ex-situ conservation of Krishna valley breed. As a result of greater awareness, many farmers demanded frozen semen of this breed for inseminating their cattle. The progeny performance reconciling of first 4 bull batches of HF crossbred bulls has completed its milking and average performance of 2039 progenies born out of 79 sires was 2929.10 kg. The milk recording of progenies born out of sires from 5th and 6th batches are in progress with support from the Department of Biotechnology, Govt. of India, semen of selected tharpasker bulls was frozen and used to improve local cattle through 5 cattle development centers in Nagpur district. Under the AICRP on improvement of feed resources and nutrient utilisation, mineral mapping of Solapur district was undertaken. The Animal Nutrition Division is involved in developing various kinds of feed and feed supplements. The mineral mixture division has produced 30 tons of mineral mixture for in house consumption and distribution to farmers. Under the all India coordinated project of ICAR on Forage crops; breeding of forage crops such as maize, pearl millet and lucerne is in progress. Newly collected land races of maize were evaluated and two of them have been taken for breeding was promising varieties; 17 coordinated trials in breeding and field testing were undertaken. Technology in fodder production of kharip and rabbi forages was promoted by establishing 35 field technology Demonstrations in the field.

Uneven distribution of land and water resources are affecting the agricultural production and creating unemployment and food insecurity in many of

the backward districts of Vidarbha and Marathwada regions of the state. Considering the shortage of milk and low agricultural output, priority was given to dairy husbandry and rain-fed area development. Realising the potential of cattle development to provide sustainable livelihood, BAIF has initiated the dairy cattle development programme, way back in early 70's. Presently, the programme is benefiting 76654 families in 2121 villages through 184 cattle development centers spread over 20 districts of which 5 centers have achieved a record insemination of more than 3000 AI per year. Out of these centers, 20 centers each are operating in Beed and Parbhani districts under the Godhan and Sunehra kal supported projects. Series of calf rallies were conducted in Vidarbha calf region with excellent response from the participating farmers. Under the goat development programme, 391 AI were conducted with 40% conception.

Chapter - 6

Data Analysis

- **Index :**

- 6.1 Introduction :**

- A. Scientists / Researchers / Officials of BAIF Development Research Foundation
 - B. Milk producers
 - C. Chairmen; Directors, Officials of dairy Co-operatives

Chapter - 6

Data Analysis

6.1 Introduction :

Ahmednagar is largest geographical district in the state of Maharashtra. Total population of this district is 45,43,000 as per census 2011. The income from land is sufficient from irrigated area but from drought prone area the agriculture income is very less. The farming community has selected dairying for their sustainable livelihood. Crossbred cows, buffalo, goat rearing, sheep rearing are the main source of dairy business. Cows and buffalos are used for milk production whenever sheep & goats for meat production. BAIF Development Research foundation plays vital role in the field of R&D Support services. Dr. Manibhai Desai the great Gandhian established BAIF under the charitable trust act 1882, in 1967. The main object of BAIF is replacing charkha with crossbreds: Employment & Income generation and availability of fodder in the rural area. For studying the subject, Researcher classified the respondents. A) Directors, Officials, Scientists, veterinarians B) Milk producers C) Chairmen, directors of co-operative societies and private plant players. There are 14 talukas in Ahmednagar district. 5 co-operative societies, general farmers, marginal farmers and landless milk producers from each taluka. i.e 5 co-operative societies, 5 general, 5 marginal and 5 landless farmers from each taluka. Total responded 5 milk producers, 5 chairmen's, 10 directors from each taluka. 210 milk producers 70 chairmen, 140 directors were interviewed from the District. 5 senior officials, 1 scientist, 2 main veterinary doctors from BAIF'S central Research station Uruli kanchan, 10 local veterinary practitioner from each taluka were selected for interview and questionnaires filed up from them. Vice chairman of Mahananda Mr. Rajendra jadhav, chairman of Godawari Khore Namdeorao Parajane co-operative milk sangh sahanandnagar kopargaon and chairman of Sangamner taluka cooperative milk sangh were interviewed, there are 17 private players in the Ahmednagar District. 2 private plant directors were interviewed for data collection in this way the researcher visited and interviewed 572 respondent form Ahmednagar District. The Researcher completed seven day's training from Nashik Panjarpol in 1985. He had chance to visit Amul, NDDDB Anand Gujarat, Gokul, Warnanagar, Katraj, Shivamrut, Rajhans, Babhaleshwar, Sahajanandnagar in 1986.

Form the observation; field visits; interviews and questionnaire Researcher find out that

A. Scientists/ Researchers / Officials of BAIF Development Research Foundation, Uruli Kanchan Tal- Haveli dist. Pune stated that-

1. BAIF provides R&D support services to milk producers of Maharashtra and 15 state of Nation.
2. Cross breeding, Artificial Insemination, Vaccination, green/dry fodder project, scientific cattle shed, cattle development programme, Animal Health, milk and milk product processing and cylege are the main services of BAIF. Which are very important and essential for dairying business.
3. The milk production is increased from each cow and buffalo by using services of BAIF.
4. The R&D support services are provided in whole Maharashtra.
5. The primary co-operative societies directly linked with BAIF through co-operative sugar factories in Ahmednagar district.
6. The services are advantageous / profitable to co-operative society runners.
7. BAIF charge fees on no profit no loss basis. The R&D support services are accepted and preferred by the milk producers.
8. BAIF accepts Donations in terms of cash, scientific equipments and some sort of Govt. Grants and subsidies.
9. Milk producers accept BAIF'S R&D support services on priority basis. Qualify, confidence and competitive prices maintained by the BAIF.
10. BAIF has central Research station at Uruli Kanchan Tal-Haveli Dist. Pune. Training facility, Accommodation, boarding facility are available, library, books, publications are available. Mobile veterinary van; Telephonic consultancy, Articles from the reputed news papers for milk producers.
11. A separate facility is available to provide R&D support services in the field. All services are available door steps of cattle shed. Drought prone area, hilly area, services are available whenever needful. Each administrative difficulty is solved by responsible official.
12. BAIF plays a vital role in the field of cross breeding. There is bull mother station at CRS. Jersey, Holstein Frisian; Gir, Khilar, Murha, Mehsana, Surti, Jafrabadi, Pandharpuri bulls are there. Well equipped semen collection and frozen laboratory facility available. BAIF awarded National and Internal level in the field of cross breeding, wadi programme, fodder project, sericulture and environment conservation.

B. Milk producers:-

It is found that milk producers are well aware about dairy business. Land labours, marginal farmers and general farmers have sufficient number of cattle's. Land less labour has no proper source of fodder. They collect green fodder from farm where they work. Cattle feed, vaccination, AI services earned from BAIF paravets / Friends. They have 2 to 5 cross breed cows, 2 to 5 goats. They don't have cattle shed, chaff cutter, drinking water, cylege, mineral mixture facilities. It is found that the cows, Buffalo and goat are with their house. Road side neem, mango trees, is used for their shelter. In rainy and winter season many problems are increased due to inadequacy.

Marginal farmers have 5 to 7 cross breed cows. Mainly jersey and Holstein frisian. They have proper facilities of cow shed, drinking water, dry and green fodder, chaff cutter, cattle feed and veterinary services. They prefer BAIF. Many times their main source of income is dairying and secondary is farming. The compost is used for farm. Proper records are kept by these farmers. House wife, son, daughter and family members take care of their cattle. The BAIF Friends are popular in this community, veterinary services are provided whenever required whether the leader of family is present or not. The BAIF doctors are much more familiar with the families and cattle's. They have history of each cow, buffalo from the cattle shed. The BAIF provides new ideas, research and development to the milk producers. i.e. free cattle shed; mineral mixture; cattle development programme, Drinking water; Milking machine, chaff cutters, Insurance policy subsidy; moorghas (cylege), Embryo transfer, IVF facilities. Mobile no of BAIF Mitres are there with each milk producer. They always communicate with milk producers. This dialog keeps them up date. The highest milk is produced from this group of milk producers. Every morning and evening after milking they collect together on the collection centers may be on co-operative or private. They discuss on milk productions, Animal science, cross breeding, New ideas of dairying; Bank finance, subsidies new policy, schemes etc.

After the observation, field visits, interviews and questionnaire Research found that-

1. Dairying is the secondary business done by farming community from long ago. Milk for family consumption, ox for farming purpose, and livestock for dung. Livestock is status symbol of some part of the district e.g. Sangamner, Kopergaon, Rahuri, Ahmednagar. The Dairying is the main source of income.
2. Land less labours, marginal and general farmers have sufficient number of cross breed cows, buffalo, goat and sheep.

3. Ahmednagar district is popularly known for co-operative. Each village have primary co-operative milk society. Major numbers of the milk producers are members of the society. Private dairy plants collection centre is available in each village of the district.
4. Uneducated; educated milk producers are engaged in this sector. It is also found that due to unemployment graduate as well as post graduate youth is doing dairying business successfully.
5. There are sufficient modern dairy farms in the district.
6. Jersey, Holstein Frisian, Gir, Lalkandhari, khilar and Gaoran cows and surti; mehsana, murha, pandhrpuri buffalo, sangamneri, kathewadi; osmanabadi goats are there with the milk producers.
7. Milk producer's attempts to increase the milk production. They take guidance from BAIF Mitras; Mahatma Phule Krushi Vidyapeeth and Zillah Parishad veterinary doctors.
8. There are no permanent veterinary doctors in each village of the district. But after mobile contact veterinary services are easily available in their door steps. BAIF'S veterinary services more preferred than others.
9. The milk production is increased by adopting the knowledge of animal science, Animal Health and veterinary services from the BAIF paravets. The income level and standard of living increased due to dairying.
10. Milk producers have sufficient facilities for dairying. But major number of milk producers doesn't have scientific facilities for their livestock. They do not adopt new technology to improve their dairy business.
11. Average 8 to 10 liters per day cow and 5 to 7 liters per day buffalo are with the farmers. They obtains minimum surplus from the milking. Many times they don't have any proper record of their live stock. After 3 to 5 lactation they sold out their cattle's in the market or in the cattle shed.
12. Each milk cow and buffalo gives 1,100 to 2,500 liters milk in a lacion. Each cow and buffalo gives seven to nine month milk. The milk producer supplies the milk to the co-operative/ private milk collection centers and earns Rs 16 to 29 per liter. The farmers don't gate remunerative price to their supplied milk. Milk producers maintain the dairying business.
13. Due to non remunerative prices many of the milk producers decided to sale out the cattle. But in other farms i.e. compost; dung, biogas; and domestic use of milk and oxen they continue the livestock rearing. But there are no motivative prices as per the Swaminathan Committee Report. Dairying is also non profitable activity of the farming community whenever Govt. hikes the milk

rates on the contrary market rates of cattle feed; veterinary medicines; wages; electricity charges. Mineral mixtures, vaccinations; AI changes and veterinary fees etc. increases parallel.

C. Chairmen; Directors, Officials of dairy Co-operatives:-

The Researcher interviewed 214 Chairmen/Directors/Officials of primary dairy co-operatives. As per the experience and actual practice to run the dairy co-operatives it is found that-

1. Village dairy Co-operatives renders R&D support services to members. In Ahmednagar district the co-op. sugar factories agreed to pay the fees of BAIF veterinary services. That's why the cow milk production is increased in the district.
2. BAIF is main R&D service provider in the district. MPKV and ZP Ahmednagar also provide their support services to the milk producers.
3. The R&D veterinary support services are available in marginal prices on no loss no profit basis. Veterinary practitioners are 7×24 hours available in the field. Only mobile contact should be there.
4. BAIF suggested scientific cattle shed having chaff cutter; milking machine; bathing facilities. Compost, biogas, Free cattle shed, Drinking water, Veterinary store, Record keeping books, weighing machine, store room etc. This type of cattle shed is popular among the milk producers. Such type of modern dairy farms are found in Sangamner, Akole, Rahuri, Rahata, Kopergaon and Shirampur Taluka.
5. The main problem of milk producers is milk prices. The milk prices declared by the Govt. are very low than the market prices. Milk producers are not happy with these prices.
6. Corporate dairy farming took place in some part of the district. Especially in Sangamner, Rahuri, Akole taluka's milk producers comes together with their cattle's. Labour, Fodder, Water, Shed, milking machine and veterinary services expenses born equally. This programme resulted in reduction of the expenses. Corporate dairy farming should be spread all over the district for reducing the high cost of milk production.
7. Milk producers are quite happy with the BAIF. BAIF is brand name in the field of R&D veterinary support services.

Chapter - 7

Suggestions

India is the nation of villages. 65% population is with the villages. The income source of village community is Farming, Dairying, sericulture and agro based small scale processing industries. There are no perfect facilities of 100% irrigation. Huge land is depending upon the rain. Food grains, fodder, cash crops are possible where the irrigation systems available. Dairying is one of the secondary source of farming community and land less labors. After analysis of data, Researcher found some difficulties, problems of milk producers, co-operative societies and of BAIF. The Researcher suggest that-

1. BAIF provides R&D support services to milk producers in Ahmednagar District. Milk producers are well known with BAIF'S Artificial Insemination. Other services i.e. scientific cattle shed; cyleg, Fodder project and Animal health are unlighted. BAIF should attempt to focus on all integrated R&D support services in the field.
2. BAIF provides its support services to co-operative societies. In Ahmednagar District co-operative sugar factories play a vital role in this regard. There is land less labors having 2 to 3 crossbreds. They are not member of co-op. society or sugar factories. They have to pay veterinary charges in cash. Due to money shortage they don't contact veterinary Doctors. BAIF Friends should contact and consult on this occasion.
3. After globalization especially from 2005 village primary dairy co-operative societies faces main problem of reducing milk collection. 80 to 88% primary co-op. milk societies are closed down due to lack of milk. BAIF friends faces problem of veterinary charges. In this situation BAIF should tie up with private plant players to offer R&D veterinary support services.
4. There is no proper record system with milk producers. Paper, Dairy, calendar, wall of cattle shed, the entries are made. This is regular system adopted by milk producers of cattle record keeping. The Researcher wish to suggest that BAIF should develop data software. Each and every entry should be made with this computer software. There should not any single birth of cattle without entry. The full bio-data should be available of all livestock with society, milk producers and with BAIF.
5. BAIF is leading R&D service provider in Maharashtra and Ahmednagar District. The training facility is available at central Research station Uruli Kanchan Dist

Pune. It is not possible to all milk producers to attend the training camp at Uruli. BAIF should organise training camps at taluka level. 10 to 20 km from milk producers. The training should be of 5 to 7 days. Machines, Technology, New inventions, R&D should be familiar with the milk producers. The object of training should be reduction in cost of milk production and growth in milk production from each cow/buffalo. Co-op. sugar factory, central place, market place or any modern dairy farm should be selected for training purpose, which will be convenient to milk producers. Books, diaries, software's, publications, news, articles should be there for detail information.

6. BAIF friends provide veterinary R&D support services to milk producers. The farming community has Cows, Buffalos, Goats, Sheep, Horses, Rabbits and Dogs with their cattle. BAIF friend's inseminates the cattle. Researcher found that 10th / 12th standard holders joins 10 to 14 days training camp at Uruli Kanchan and begins their private practice in the field. BAIF friends must be minimum B.V.S.C degree holders. Training should be of 3 to 5 mouths. After completion of camp there should be orientation course of 10 to 15 days each year. After 12th science Diploma certificate course should be there. Minor cases should be handled with these diploma holders. Major cases must be handled with Degree holder veterinary Doctors.
7. Israel, Brazil, Denmark, Holland, Australia, U.S.A, New Zealand are main players in milk production. Per cow milk production is very high in these countries. India has highest cattle population in the world but per cattle milk production is very low. BAIF should participate worldwide conferences. New inventions, Technology, Machinery should be studied with Indian culture. BAIF should develop cost reducing machines, Technologies and introduce in the field. Meeting, Conferences, Workshops, and Jatra, Yatra, Utsaw should be organized to orient the farming community.
8. In Ahmednagar District unemployed, uneducated farming and landless community engaged in diary business. They have sufficient number of cattle. But they don't have any proper knowledge of dairy business. BAIF should train them. Small scale processing pilot scheme of unit should be there to train the farming community Govt., co-op. sugar factories, corporate farming community, and primary dairy co-op. society should take lead in this regard.
9. Farming is the main and Dairying is secondary source of income of farming community. If the proper training facility, Guidance, consultancy services available, sufficient income is generated through dairying. The Researcher visited in Sangamner, Kopergaon, Akole, Rahuri, Shrigonda, Sheogaon area. These are some dairy farms having good quality crossbreeds. R&D Veterinary services. With

the help of all these services and infrastructure highest milk is produced. The main income source is changed and dairying has taken place of farming. BAIF should motivate village level corporate pilot dairy farms with progressive farming community. Milk producers from the surrounding should take ideology of these advanced dairy farms. To produce more milk from selected cross bred.

10. Primary co-op. milk society level there is no facility of veterinary services. Milk producer's approaches to the BAIF friends to gate guidance and veterinary treatment. This method is expensive. VDC should have common veterinary doctor for the treatment. Many villages from Ahmednagar district have no permanent veterinary doctor. About 2 to 3 village's 1 to 3 private practitioners provides services to the cattle.
11. Village Dairy co-operatives play a vital role in the dairy development. Wise, educated and trained personalities should be elected on the Board of Directors. They have knowledge of scientific dairy farming. The object of the VDC should maximum milk production and integrated development of member. But it is found that only on political pressure, nuisance value and family relations the directors are appointed. It results in closing down the business. When researcher visited vice chairman of Mahananda Shri Rajendraji Jadhav, He pointed out that BAIF, Mahatma Phule Agriculture University and Zillah Parishad Ahmednagar should concentrate on Research and Development Activities. Genetics, Vaccination, Diseases, Processing, cattle feed, animal health and technology to promote the dairy business and reduce the production cost. Farmers, Board members have confidence that "BAIF can do it" Because they have Advanced infrastructure, facilities, Technologies, laboratories and strong will power.

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