



**GOVERNMENT OF MAHARASHTRA**

**REPORT ON**

**MILK, EGG, WOOL AND  
MEAT PRODUCTION**

**AND**

**LIVESTOCK AND POULTRY  
KEEPING PRACTICES IN  
MAHARASHTRA STATE**

**FOR THE YEAR 1987-88**

**DIRECTORATE OF ANIMAL HUSBANDRY  
MAHARASHTRA STATE**

**PUNE-411 001**

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MILK, EGG, WOOL AND MEAT PRODUCTION  
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## P R E F A C E

The Department of Animal Husbandry, Maharashtra State, has launched an Integrated Sample Survey Scheme since 1970-71, to study the annual status of the major Livestock Products and Live-stock and Poultry Keeping practices followed in the State. So far seventeen such annual surveys have been conducted in the State, in succession. The present report is based on the findings of the eighteenth annual survey in the series.

As such the report contains information on Milk, Egg, Wool and Meat production estimates in the State during 1987-88. It also contains information about feeding and management practices followed in livestock and poultry, utilisation pattern of livestock products, mortality rates of livestock and poultry, etc.

The success of this survey goes to the field staff as well as office staff of the Integrated Survey Scheme. We are also indebted to the Indian Agricultural Statistics Research Institute, New Delhi for providing the sampling technique for the Survey. It is hoped that the findings of the survey will be useful to the planners, administrators and those interested in Animal Husbandry and Dairying. The results of the survey are given at the beginning of the report in the form of "Results at a glance" for the sake of convenience.

Place . :- PUNE-411 001

Dated :- 17th May 1989

(P. D. MOKASDAR)

Director of Animal Husbandry  
Maharashtra State, Pune-1.

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Some salient results at a glance from the survey on production of Milk, Egg, Wool and Meat, and study of livestock and poultry keeping practices in Maharashtra State during the year 1987-88

Sr.No.	Item	Unit	Figure
1.	<u>Size of Sample observed</u>		
i)	Districts observed	Number	30
ii)	Villages observed	Number	585
2.	<u>Characteristics of villages</u>		
i)	Having bovine	Percentage	100.0
ii)	Having Poultry	--do--	97.3
iii)	Having Sheep	--do--	22.1
iv)	Having Goats	--do--	95.2
v)	Average number of households per village	Number	217
3.	<u>Households rearing</u>		
i)	Bovine	Percentage	59.9
ii)	Poultry	--do--	28.6
iii)	Sheep	--do--	1.1
iv)	Goats	--do--	26.3
v)	No Livestock and Poultry	--do--	26.7
4.	<u>Availability of facility for Veterinary Aid</u>		
i)	Within village	--do--	6.4
ii)	Up to 5 Kms.	--do--	42.8
iii)	Average istance of Veterinary Aid	Kms.	16.8

II. MILK PRODUCTION AND LIVESTOCK BOVINE AND BOVINE KEEPING PRACTICES

	1. <u>Size of Sample observed</u>		
Study	i)	Bovine keeper households	Number 9,220
	ii)	Bovines observed for detailed	--do-- 42,518
	iii)	In-milk animals for milk recording	
	a)	Cows	--do-- 7,207
	b)	Buffaloes	--do-- 3,758

1	2	3	4
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2. Estimated number of in-milk animals

i) <u>Cows in-milk</u>			
a) Deshil	Lakhs		20.54
b) Crossbred	--do--		1.95
c) Total	--do--		22.49
ii) Buffaloes in-milk	--do--		13.53
iii) Goats in-milk	--do--		24.41

3. Average daily milk yield per animal in-milk

1) Cow			
a) Deshi	Kg. (Litre)		1,021 (0.993)
b) Crossbred	--do--		5,318 (5.173)
c) Overall	--do--		1,395 (1.357)
2) Buffalo	--do--		2,719 (2.645)
3) Goat	--do--		0.181 (0.176)

4) Estimated annual milk production

i) Cow milk			
a) Deshi	Lakh Kg.		7677.49
	(Lakhs litre)		(7467.89)
b) Crossbred			3802.92
			(3699.10)
ii) Buffalo milk	--do--		13471.39
			(13103.62)
iii) Goat milk	--do--		1615.80
			(1571.69)
iv) Total	--do--		26567.60
			(25842.30)

5. Per capita per day availability of milk

a) Cow + Buffalo	Gm.		97
b) Cow + Buffalo + Goat	--do--		103

6. Feeding practices of bovines

i) Cattle kept on grazing alone	Percentage		11.4
ii) Buffaloes kept on grazing alone	--do--		9.2

7. Average quantity of feed/foder fed per day per animal (including animals kept on grazing alone, also)

a) Cattle	i) Greed	Kg.	2.424
	ii) Dry	Kg.	5.230
	iii) Concertrates	Kg.	0.101

1	2	3	4
b) Buffaloes	i) Green	Kg.	2.789
	ii) Dry	Kg.	5.109
	iii) Concentrates	Kg.	0.609
8.	Averages quantity of dung colleted in cattle shed per bovine per day	Kg.	3.246
9.	Estimated annual quantity of dung collected	'000 MT	24,895
10.	<u>Annual mortality in bovines</u>		
	i) Cattle	Percentage	1.55
	ii) Buffalo	--do--	3.22

III) EGG PRODUCTION AND POULTRY KEEPING PRACTICES

1. Size of sample observed

i) Total poultry keeper households	Number	18,190
ii) <u>Total poultry birds</u>		
a) Cocks	-do-	9,850
b) Hens	-do-	45,310
b) Cockerels	-do-	9,076
d) Pullets	-do-	12,260
e) Chicks	-do-	42,340
f) Total	-do-	1,18,836

2. Estimated number of layers

A) Deshi	Lakhs	76.17
b) Improved	-do-	31.86
c) Total	-do-	108.03

3. Average number of eggs laid per layer per year.

a) Deshi	Number	119
b) Improved	-do-	254

4. Estimated annual egg production

a) Deshi	Lakh	9073.41
b) Improved	-do-	8092.44
c) Total	-do-	17165.85

5. Per capita per annum availability of poultry keeper

Number	24
--------	----

6. Average No. of poultry birds per 100 poultry keeper

a) Cocks	-do-	54
b) Hens	-do-	249
c) Cockerels	-do-	50
d) Pullets	-do-	67
e) Chicks	-do-	233
d) Total	-do-	653

..... 2 ..... 3 ..... 4 .....

- 7. Average feed supplied per poultry bird per day Gm. 19.3
- 8. Annual mortality in poultry Percentage 15.3

IV) WOOL PRODUCTION AND SHEEP REARING

PRACTICES

1. Sample size observed for detailed study

- a) Number of flocks Number 135
- b) Number of Sheep --do-- 4,835

2. Estimated number of Sheep

- i) Rams/wethers Lakh 2.41
- ii) Ewes --do-- 18.47
- iii) Lambs (6.71)
- iv) Total 27.59

3. Estimated No. of sheep shorn

- i) Rams/wethers Lakh 2.36
- ii) Ewes --do-- 18.10
- iii) Lambs 3.82
- iv) Total 24.28

4. Estimated annual wool yield/per sheep shorn

- i) Rams/wethers Kg. 0.613
- ii) Ewes 0.600
- iii) Lambs 0.373
- iv) Overall 0.566

5. Estimated annual wool production M.T. 1373

6. Mortality in sheep percent. 4.1

V) GOAT MILK PRODUCTION AND GOAT REARING

PRACTICES

1. Sample size observed

- i) Goat keeper households No. 11,662
- ii) In-milk goats for milk production No. 17,829

2. Average daily milk yield per goat in-milk Kg/Litre 0.181 (0.176)

3. Goat in-milk to milch goats Percentage 47.52

4. Estimated No. of goats in-milk Lakh (No.) 24.41

5. Estimated total goat milk production Lakh (litres) 1615.80 (1571.69)

6. Annual mortality of goats % 4.8



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1 ..... 2 ..... 3 ..... 4 .....  
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VI) MEAT PRODUCTION

<u>1. Average meat production per animal</u>		
1. Cattle	Kg.	120.731
2. Buffalo	Kg.	139.017
3. Sheep	Kg.	10.981
4. Goat	Kg.	10.284
5. Pig	Kg.	22.920
<u>2. Estimated No. of animals Slaughtered</u>		
1. Cattle	Lakh	4.76
2. Buffaloes	-do-	2.44
3. Sheep	-do-	20.07
4. Goats	-do-	39.71
5. Pig	-do-	2.44
3. Estimated annual meat production	000 MT	159.930
<u>4. Estimated number of</u>		
a) Hides	Lakh pieces	11.24
b) Skins	-do-	65.14

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CHAPTER - I

1.1 INTRODUCTION

The present report is based on the eighteenth Annual Integrated Survey, conducted by the Department of Animal Husbandry, Maharashtra State, for estimation of annual production of major Livestock products viz. Milk, Egg, Wool and Meat and study the livestock and poultry keeping practices followed during the year 1987-88.

The scheme was partially strengthened during 1984-85 and accordingly the data on production of milk and eggs were collected for group of districts as per the revised plan, suggested by the Ministry of Agriculture Animal Husbandry Statistics Division, Govt. of India, New Delhi.

1.2 DESCRIPTION OF THE SURVEY

The Survey has been conducted all over the State, during all the three seasons of the year. The State consists of 30 districts with 303 tahsils, comprising 39,354 inhabited villages and 307 cities and town units as per 1981 human population census.

1.3 LIVESTOCK POPULATION

According to 1982 Livestock Census, the Maharashtra State had 309.19 lakh Livestock. This constituted 201.34 lakh (65%) bovines, 77.05 lakh (25%) goats, 26.71 lakhs (9%) sheep, 3.01 lakh pigs and remaining 1.08 lakhs were horses, donkeys and mules. The total poultry was 198.44 lakh.

1.3.1 VARIATION IN LIVESTOCK POPULATION

The following table gives the percentage variation of livestock and poultry population of 1982 census over that of 1978 census.

TABLE NO. 1  
Comparison of livestock census figures

Sr.No.	Category	Population '000 As per		Percentage increase 1982 over 1978 census
		1982 Census	1978 Census	
1	2	3	4	5
1.	Cattle	16162	15218	6.20
2.	Buffaloes	3972	3899	1.87
3.	Sheep	2671	2636	1.33

1	2	3	4	5
4. Goats		7705	7563	1.88
5. Pigs		301	226	33.19
6. Other		108	100	8.00
7. Total livestock		30919	29642	4.31
8. Total Poultry		19844	18751	5.83

It is seen from Table No. 1 that there is an increase in all types of livestock as well as poultry over the previous census.

1.4 PERIOD OF FIELD WORK

The data for the present survey was collected during all the three seasons of the year 1987-88 as shown below.

- 1. Summer season : March 1987 to June 1987
- 2. Rainy season : July 1987 to October 1987
- 3. Winter season : November 1987 to February 1988

1.5 SAMPLING PLAN

A stratified multistage random sampling design has been adopted for the survey. The State was divided into 12 groups each consisting of about 1 to 4 districts, which have been common geographical boundaries and topographical conditions. The groups of districts are treated as strata and are as follows.

Group No.	Districts
1.	Gr. Bombay
2.	Thane, Raigad
3.	Ratnagiri, Sindhudurg
4.	Nashik, Dhule Jalgaon
5.	Ahmednagar, Pune
6.	Satara, Sangli, Kolhapur
7.	Solapur, Beed, Osmanabd, Latur
8.	Aurangabad, Jalna, Buldhana
9.	Parbhani, Nanaded
10.	Akola, Amravati, Yavatmal
12.	Chandrapur, Gadchiroli

Out of the total villages/towns in the State, 15 percent villages/towns were selected randomly from the 11 groups of dists. (excluding Gr. Bombay) in proportion to livestock and poultry population in these groups according to 1982 livestock census. These villages were equally divided into 3 seasons of the year. From these villages 20 villages were selected randomly from each group of dists and 5 nearly villages were allotted to each survey assistant, for collecting data on Milk, Egg, Wool and Meat production and rearing practices of livestock and .....

poultry. The data on number of livestock and poultry was also collected from remaining 15% of the villages from the concerned Block Development Officers of Zilla Parishads.

On the basis of data collected from 20 such villages, groupwise estimates for milk and egg were worked out for a season. The State estimates for a season were obtained by pooling the groupwise estimates. By adding 3 seasonal estimates the annual estimates for the State were worked out. The estimated number of productive animals was based on 15% villages data received from Panchayat Samities in addition to 20 villages from each group of districts.

### 1.6 PROGRAMME OF FIELD WORK

For collection of data regarding production and rearing practices of livestock and poultry, one Survey Assistant was allotted 5 villages selected randomly, afresh for each season, from a group of districts. Such 4 Survey Assistants were working in each group. For Gr. Bombay district, one Survey Assistant was working and he collected the data about milk production and allied information by visiting about 20 stalls in a month, selected randomly. For remaining groups of districts, each Survey Assistant visited selected villages in 3 to 4 rounds and in a round he made 4 day's halt, for collection of data in each selected villages. During the first round he carried out house to house complete enumeration of livestock and poultry. After completion of enumeration he collected data as per the norms given in Table No. 2 below :-

TABLE NO. 2

Details of data collection

Sr. No.	Schedule No.	Type of information collected	No. of households observed per day
1	2	3	4
1.	B <sub>1</sub>	Milk production and abovine keeping practices.	2
2.	B <sub>2</sub>	Utilisation of milk for non-bovine keeping households.	1
3.	P <sub>1</sub>	Changes in poultry number	10
4.	P <sub>2</sub>	Egg production and Poultry keeping practices	5

1.	2	3	4
5.	P <sub>3</sub>	Egg Utilisation in non-poultry households	2
6.	W <sub>1, 2</sub>	Sheep rearing practices and wool production	3
7.	S <sub>1</sub>	Goat milk production and goat rearing practices.	3
8.	T <sub>1</sub>	Meat production in households having livestock or poultry.	10
9.	T <sub>2</sub>	Meat production in households having no livestock and poultry	2
10.	T <sub>3</sub>	Meat production and other by-products obtained through slaughter at District place slaughter house.	3

#### 1.7 DETAILS OF DATA COLLECTED

In this report, tables on milk, egg, wool and meat production estimates alongwith keeping practices of livestock and poultry are presented.

Details of data collected are given as follows :

1. Feeding practices of bovine and poultry
2. Utilisation of milk and eggs
3. Utilisation of dung
4. Mortality in bovine, poultry, sheep and goats.

#### 1.8 STAFF

The following staff was sanctioned under the Scheme during the year under report.

TABLE NO. 3

Sr. No.	Name of the post	Scale	No. of posts	No. of vacancies
1	2	3	4	5
1.	Assistant Director (MAHS Jr. Class-I)	2200-4000	1	-
2.	Livestock Development Officer (MAHS Class-II)	2000-3500	8	-
3.	Investigator	1640-2900	3	-
4.	Statistical Assistant	1200-2040	6	2
5.	Survey Assistant (Jr. Clerk cadre)	950-1500	28	2

1	2	3	4	5
6. Survey Assistant (Livestock Supervisor)		1200-1800	22	2
7. Accountant		1200-2040	1	-
8. Senior Clerk		1200-2040	2	-
9. Junior Clerk		950-1500	1	-
10. Peons		750-940	3	-
Total			75	6

The field data were collected by 45 Survey Assistants (1 Survey Assistant for Gr. Bombay and 4 each for remaining 11 group of districts). Five Survey Assistants were kept as leave reserve. The Livestock Development Officer supervised the field work of Survey Assistants by actually visiting the selected villages. The data so collected were scrutinised, compiled, tabulated and analysed by Statistical Assistants and Investigators. The Assistant Director was the overall incharge of the scheme for field work as well as administrative work.

The Deputy Director of Animal Husbandry (Statistics) gave valuable guidance in conduct of survey and finalisation of production estimates as well as report.

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CHAPTER II

CHARACTERISTICS OF SAMPLE VILLAGES

2.1 During the year under report out of 660 selected villages data of 585 villages were received on items such as land possessed, breeding, feeding and management practices followed and obtaining details regarding production and utilisation of milk, eggs, wool and meat. (\*)

TABLE NO. 4

Distribution on villages having Livestock/Poultry

Sr. No.	Season	Percentage of villages having			
		Bovine	Poultry	Goats	Sheeps
1	2	3	4	5	6
1.	Summer	100.0	96.8	96.3	23.7
2.	Rainy	100.0	97.5	94.5	21.0
3.	Winter	100.0	97.4	94.9	21.5
	Overall	100.0	97.3	95.2	22.1

It is seen from the table No. 4 that bovine were found in all the villages, while poultry and goats were found in 97.3 and 95.2 percent of villages respectively. Sheep were found in only 22.1 percent villages, because sheep population is mainly concentrated in Pune division of the State.

2.2 NUMBER OF HOUSEHOLD PER VILLAGE

During the year, livestock and poultry were enumerated by Survey Assistants from a total of 1,26,781 households in 585 selected villages. The seasonwise distribution of these villages, according to number of households found per village is given in Table no. 5

(\*) The distributed of villages having various categories of livestock and poultry is presented table No. 4.

TABLE NO. 5

Distribution of villages according to number of households

Sr. No.	Number of households	Percentage of villages			
		Summer	Rainy	Winter	Overall
1	2	3	4	5	6
1.	Upto 50	0.5	0.5	1.5	0.9
2.	50 to 100	2.1	6.5	3.6	4.1
3.	101 to 150	14.2	13.0	14.4	13.8
4.	151 to 200	30.0	26.0	24.1	26.7
5.	201 to 300	40.0	37.5	40.0	39.1
6.	301 to 400	9.5	11.5	13.3	11.5
7.	401 to 600	3.2	4.5	3.1	3.6
8.	Above 600	0.5	0.5	-	0.3
Total		100.0 (190)	100.0 (200)	100.0 (195)	100.0 (585)
Average No. of households per village.		213	220	217	217

(Note :- Figures in brackets indicate number of villages observed)

It is seen from the above table, that about 5% villages had upto 100 households 40% villages had in the range of 101 to 200 households, while 39 and 15% villages had from 201 to 300 and more than 300 households per village, respectively. The overall average number of households per village was found to be 217.

2.3 HOUSEHOLDS REARING LIVESTOCK AND POULTRY :

The total enumerated households were classified according to particular kind of livestock and poultry possessed and the same is given in table No. 6.



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TABLE NO. 6

Distribution of households according to type of livestock & Poultry reared

Sr. No.	Particulars	Percentage of households rearing					
		Bovine	Poultry	Goats	Sheep	Live stock/ Poultry in combination	No. live stock/ Poultry
1	2	3	4	5	6	7	8
1.	Households rearing only one type of Livestock or Poultry	29.1	6.3	6.5	0.1		
2.	Total households rearing livestock or poultry in combination	59.9	28.6	26.3	1.1	37.3	20.7

From the total households observed, it was found that 59.9 percent households reared bovine, 28.6 percent reared poultry and 25.3 percent households reared goats either alone or in combination with other type of livestock or poultry.

2.4 GENERAL FACILITIES FOR THE VILLAGES

Information regarding facilities for veterinary aid distance from market for cattle feed, milk etc. was collected for the selected villages and is given in Table No. 7.

TABLE NO. 7

Distribution of villages according to availability of various facilities and their distance

Sr. No.	Facility	Percentage of villages for which it is available at a distance of (Kms.)					Average distance (K.ms.)
		0 to 3	3 to 5	5 to 10	10 & above	above 10	
1	2	3	4	5	6	7	8
1.	Vety. Aid	6.4	20.4	22.4	31.7	19.1	6.8
2.	Artificial Insemination	5.0	17.7	30.0	31.5	15.8	7.5
3.	Vety. Dispensary	1.1	9.7	15.3	30.9	43.0	15.4
4.	Market for cattle feed.	2.9	9.5	10.3	31.5	45.8	12.8
5.	Market for milk & milk products	12.4	12.9	15.0	30.5	29.2	8.6
6.	Market for cattle	1.0	6.0	10.3	24.3	58.4	15.4
7.	Market for eggs	2.9	9.9	12.6	34.4	40.2	10.8
8.	Market for wool	0.3	2.0	10.4	33.5	53.8	19.8
9.	Market for meat	2.1	10.7	13.6	34.8	38.8	10.6

(Number of villages observed were 585)

It may be observed that veterinary aid or veterinary dispensary services were available in 6.4 percent villages in village it self and the average distance at which these facilities were available was 6.8 K.m. The artificial insemination facility was available in 5.0 percent villages in village it self and average distance at which this facility was available was 7.5 Kms. The cattle feed was available in village it self in the case of only 2.9 percent villages and average distance at which cattle feed was available was 12.8 percent.

2.5 AVERAGE NUMBER OF LIVESTOCK AND POULTRY REARED PER 100 HOUSEHOLDS.

The details about the number of bovines, poultry goats and sheep reared per 100 households is presented in Table No. 8.

TABLE NO. 8 (A)

Average number of livestock/poultry per 100 households

Sr. No.	category	In-milk	Dry & not calved even once	Adult males	Young stock	Total
1	2	3	4	5	6	7
1.	Cattle	30	47	96	53	226
2.	Buffalo	16	15	3	17	51
3.	Poultry	-	-	-	-	182
4.	Sheep	-	-	-	-	32
5.	Goats	-	-	-	-	126

It is seen from the above table that average number of cattle reared per 100 households was 226, the buffalo class bovines 51, goats 126 and sheep 32. The same for poultry was 182.

The livestock for households keeping particular class of animals is presented in Table No. 8 (b).

TABLE No. 8 (B)

Average number of livestock per 100 households keeping paerticular Kind of livestock

Sr. No.	Category	In-milk	Dry + N.C.	Adult females	Adult males	Young stock	Total
1	2	3	4	5	6	7	8
I)	Bovinekeeper						
	i) Cattle	51	78	129	160	88	377
	ii) Buffaloes	27	24	51	16	28	85
II)	Goat Keeper	143	123	266	28	485	479
III)	Sheep keeper			1544	308	1102	2954

CHAPTER III

3.1 MILK PRODUCTION AND BOVINE KEEPING PRACTICES

The estimates of milk production for 12 groups of districts including Gr. Bombay during each season was obtained for indigenous cows and buffaloes separately. It was based on (i) estimate of average daily milk yield per animal in-milk (ii) estimated No. of animals in-milk and (iii) number of days in the season. The results are based on 7,207 cows and 3,758 buffaloes for milk recording during the year.

Attempts were also been made from 1985-86 to obtain the separate estimates of milk production in respect of crossbred cows also. However it was not possible at this stage to obtain these estimates for each group of districts as was possible in respect of indigenous cows. This is due to the fact that the number of crossbred cows observed is not sizable. Hence only State estimates are worked out in case of crossbred cows.

3.2 ESTIMATED NUMBER OF INMILK AND MILCH ANIMALS

The 'Ratio' method of estimation was adopted to work out the estimated number of in-milk cows as well as buffaloes. The ratio was worked out between the total number of in-milk animals enumerated and the corresponding number as per the 1982 census in all the selected villages in respective group of districts and in addition to data received from Panchayat Samiti for remaining 15 percent villages was also used to obtain this ratio.

The estimates so obtained for different group of districts were pooled together to obtain the estimated number for a season. For State as a whole a similar procedure was adopted to obtain the estimated number of milch animals.

The estimated number of in-milk and milch animals so worked out for different seasons and for groups of districts are presented in Table No. 9, 10, 11 and 12 respectively.

TABLE NO. 9

Estimated number of in-milk and milch animals for Summer season

Sr. Group of No. Districts	Estimated number of animals (in lakhs)				
	In-milk		Milch		
	Indigenous Cows	Buffaloes	Indigenous Cows	Buffaloes	
1	2	3	4	5	6
1. Gr. Bombay	0.02	0.46	0.02	0.50	
2. Thane, Raigad	1.27	0.86	2.67	1.29	
3. Ratnagiri, Sindhudurg	0.80	0.36	1.84	0.61	
4. Nashik, Dhule, Jalgaon	2.74	1.60	6.40	2.85	
5. Ahmadnagar, Pune	1.99	1.17	5.10	2.02	
6. Satara, Sangli, Kolhapur	1.25	3.83	2.56	5.75	
7. Solapur, Latur, Osmanabad	2.68	1.63	5.22	2.88	
8. Aurangabad, Jalna, Beed, Buldhana	1.90	0.67	4.04	1.18	
9. Parbhani, Nanaded	1.93	0.87	4.31	1.58	
10. Akola, Amravati, Yavatmal	2.54	1.02	6.49	1.92	
11. Wardha, Nagpur, Bhandara	2.01	0.65	5.51	1.21	
12. Gadchiroli, Chandrapur	1.38	0.26	3.34	0.52	
State total	20.51	13.43	47.50	22.31	
	(5.70)	(5.53)			
Crossbred cows for the State	2.03	-	2.98	-	

Note :- Figures in brackets indicate P.S. Es.

TABLE NO. 10

Estimated number of in-milk and milch animals for Rainy season

Sr. Group of No. districts	Estimated number of animals (in lakhs)				
	In-milk		Milch		
	Indigenous Cows	Buffaloes	Indigenous Cows	Buffaloes	
1	2	3	4	5	6
1. Gr. Bombay	0.02	0.46	0.03	0.50	
2. Thane, Raigad	1.22	0.88	2.66	1.27	
3. Ratnagiri, Sindhudurg	0.84	0.37	1.89	0.62	
4. Nashik, Dhule, Jalgaon	2.78	1.62	6.59	2.88	
5. Ahmadnagar, Pune	1.97	1.13	4.93	1.92	
6. Satara, Sangli, Kolhapur	1.29	3.79	2.66	5.66	
7. Solapur, Latur, Osmanabd, Beed	2.57	1.65	5.19	2.81	
8. Aurangabad, Jalna, Buldhana	1.91	0.70	4.03	1.23	
9. Parbhani, Nanaded	1.96	0.89	4.30	1.61	
10. Akola, Amravati, Yavatmal	2.49	0.97	6.39	1.87	
11. Wardha, Nagpur, Bhandara	1.96	0.60	5.48	1.15	
12. Gadchiroli, Chandrapur	1.39	0.25	3.34	0.52	
State Total	20.40	13.31	47.49	22.04	
C.B. cows for the State	1.81	-	3.00	-	
	(4.36)	(4.56)			

Note : Figures in brackets indicate percentage standard errors.

TABLE NO.11

Estimated number of in-milk and milch animals for the Winter Season

Sr. No.	Group of Districts	ESTIMATED NUMBER OF ANIMALS (IN LAKHS)			
		In-milk		Milch	
		Ind.	Buf.	Ind.	Buf.
1	2	3	4	5	6
1.	Gr. Bombay	0.02	0.46	0.03	0.49
2.	Thane, Raigad	1.23	0.89	2.72	1.31
3.	Ratnagiri, Sindhudurg	0.80	0.37	1.83	0.63
4.	Nashik, Dhule, Jalgaon	2.73	1.71	6.42	2.99
5.	Ahmednagar, Pune	2.05	1.22	4.96	2.01
6.	Satara, Sangli, Kolhapur	1.26	3.91	2.65	5.73
7.	Solapur, Latur, O'bad, Beed	2.70	1.74	5.27	2.82
8.	Aurangabad, Jalna, Buldhana	1.94	0.70	4.10	1.25
9.	Parbhani, Nanded	1.94	0.91	4.41	1.65
10.	Akola, Amravati, Yavatmal	2.60	1.03	6.49	1.96
11.	Wardha, Nagpur, Bhandara	2.02	0.66	5.57	1.22
12.	Gadchiroli, Chandrapur	1.41	0.27	3.46	0.53
State Total		20.70	13.87	47.91	22.59
C.B. cows for the State		2.03		3.02	

Note :- Figures in brackets indicate P.S.Es.

TABLE NO.12

Estimated number of in-milk &amp; milch animals for the year (overall)

Sr. No.	Group of Districts	Estimated number of animals (in lakhs)			
		In-milk		Milch	
		Ind.	Buf.	Ind.	Buf.
1	2	3	4	5	6
1.	Gr. Bombay	0.02	0.46	0.03	0.49
2.	Thane, Raigad	1.24	0.88	2.69	1.29
		(2.5)	(8.6)	(4.7)	(5.7)
3.	Ratnagiri, Sindhudurg	0.81	0.36	1.85	0.62
		(2.5)	(2.9)	(2.8)	(3.3)
4.	Nashik, Dhule, Jalgaon	2.75	1.64	6.47	2.91
		(4.6)	(7.9)	(4.4)	(6.2)
5.	Ahmadnagar, Pune	2.00	1.17	5.00	1.98
		(4.2)	(11.4)	(3.3)	(9.4)
6.	Satara, Sangli, Kolhapur	1.26	3.84	2.62	5.71
		(3.3)	(6.4)	(4.8)	(4.8)
7.	Solapur, Latur, O'bad, Beed	2.65	1.69	5.23	2.84
		(3.5)	(7.0)	(5.7)	(5.6)
8.	Aurangabad, Jalna, Buldhana	1.92	0.69	4.06	1.22
		(3.2)	(9.5)	(3.3)	(8.0)
9.	Parbhani, Nanded	1.95	0.89	4.34	1.61
		(3.2)	(6.0)	(4.6)	(7.3)

1	2	3	4	5	6
10. Akola, Amravati, Yavatmal	2.54 (5.4)	1.01 (7.4)	6.45 (5.0)	1.92 (7.9)	
11. Wardha, Nagpur, Bhandara	2.00 (5.8)	0.64 (8.5)	5.52 (5.1)	1.20 (8.1)	
12. Gadchiroli, Chandrapur	1.40 (3.7)	0.26 (8.3)	3.38 (3.7)	0.52 (8.3)	
State Total	20.54 (4.01)	13.53 (8.0)	47.64 (4.4)	22.31 (6.2)	
Percentage Standard error	2.88	2.93			
C.B. and exotic cows	1.95 (51.2)	-	3.00 (59.6)		

(Note :- figures in brackets indicate percentage increase over census figures of 1982)

The above table indicates that during the year 1987-88 as compared to 1982 census in the case of in-milk, Indigenous cows the percentage increase for State as a whole comes to 4.0 percent. The same for crossbred cows and buffaloes comes to 51.2 percent and 8.0 percent respectively. In the case of milch animals the percentage increase for the state for indigenous cows, Crossbred cows and Buffaloes comes to 4.4, 59.6 and 6.2 percent respectively. The percentage increase in crossbred cows is note worthy and is a result of crossbreeding programme in the State. Due to crossbreeding programme percentage increase in Indigenous cows is comparatively low.

### 3.3 AVERAGE DAILY MILK YIELD PER ANIMAL IN-MILK AND PER MILCH ANIMAL

The estimated average yield per cow in-milk and per milch animals in respect of cows and buffaloes for Summer, Rainy and Winter seasons are presented in Table No. 13, 14 and 15 respectively.

TABLE NO. 13  
Average daily milk yield per animal in milk & per milch animals for Summer Season

Group No.	Name of the	Per day average milk yield (Kg.)			
		Indigenous cow		Buffaloe	
		In-milk	Milch	In-milk	Milch
1	2	3	4	5	6
1.	Gr. Bombay	5.625	3.825	6.670	6.282
2.	Thane, Raigad	0.749	0.356	2.030	1.360
3.	Ratnagiri, Sindhudurg	0.383	0.166	0.677	0.394
4.	Nashik, Dhule, Jalgaon	1.219	0.522	2.366	1.325

1	2	3	4	5	6
5.	Ahmadnagar, Pune	1.102	0.431	2.357	1.366
6.	Satara, Sangli, Kolhapur	1.085	0.531	2.543	1.695
7.	Solapur, Latur, O'bad, Beed	1.266	0.649	2.253	1.315
8.	Aurangabad, Jalna, Buldhana	0.927	0.436	2.679	1.518
9.	Parbhani, Nanded	1.290	0.579	1.779	0.982
10.	Akola, Amravati, Yavatmal	0.917	0.358	2.432	1.292
11.	Wardha, Nagpur, Bhandara	0.754	0.275	2.673	1.447
12.	Gadchiroli, Chandrapur	0.456	0.189	1.816	0.896
State as a whole		0.993 (1.7)	0.429	2.472 (4.49)	1.488
For C.B. and Exotic cow		5.553	3.774	-	-

Note :- Figures in brackets indicate P.S.Es.

TABLE NO. 14  
Average daily milk yield per animal in-milk and per milch animals for Rainy season

Group No.	Name of the District	Per day average milk yield (in Kg.)			
		Indigenous cow		Buffalo	
		In-milk	Milch	In-milk	Milch
1	2	3	4	5	6
1.	Gr. Bombay	6.500	4.420	7.177	6.759
2.	Thane, Raigad	1.093	0.500	2.300	1.598
3.	Ratnagiri, Sindhudurg	0.776	0.346	1.487	0.882
4.	Nashik, Dhule, Jalgaon	1.351	0.570	2.664	1.501
5.	Ahmednagar, Pune	1.194	0.476	2.691	1.583
6.	Satara, Sangli, Kolhapur	1.076	0.521	2.397	1.604
7.	Solapur, Latur, O'bad, Beed	1.183	0.586	3.110	1.820
8.	Aurangabad, Jalna, Buldhana	1.093	0.519	2.555	1.441
9.	Parbhani, Nanded	1.071	0.488	1.864	1.030
10.	Akola, Amravati, Yavatmal	0.826	0.322	2.404	1.244
11.	Wardha, Nagpur, Bhandara	0.782	0.279	3.065	1.598
12.	Gadchiroli, Chandrapur	0.429	0.179	1.599	0.783
State as a whole		1.030 (1.37)	0.442	2.666 (2.74)	1.610
For crossbred & Exotic cow		5.058	3.046	-	-

Note :- Figures in bracket indicate percentage standard error.



.. 21 ..  
TABLE NO. 15

Average daily milk yield per animal in milk and per milch animal  
for Winter Season

Group No.	name of the District	Per day average milk yield (in Kg.)			
		Indigenous		Buffaloes	
		In-milk	Milch	In-milk	Milch
(1)	(2)	(3)	(4)	(5)	(6)
1.	Gr. Bombay	4.900	3.332	6.000	5.651
2.	Thane, Raigad	0.949	0.429	3.349	2.275
3.	Ratnagiri, Sindhudurg	0.756	0.329	1.668	0.970
4.	Nashik, Dhule, Jalgaon	1.089	0.463	3.211	1.842
5.	Ahmednagar, Pune	1.258	0.520	2.614	1.582
6.	Satara, Sangli, Kolhapur	1.297	0.614	2.754	1.880
7.	Solapur, Latur, Beed, O'bad	1.863	0.956	3.558	2.192
8.	Aurangabad, Jalna, Buldana	1.008	0.477	3.083	1.728
9.	Parbhani, Nanded	1.172	0.517	2.016	1.109
10.	Akola, Amravati, Yavatmal	0.591	0.237	2.995	1.580
11.	Wardha, Nagpur, Bhandara	0.613	0.222	3.275	1.769
12.	Gadchiroli, Chandrapur	0.328	0.133	2.007	1.008
State as a whole		1.041 (4.38)	0.450	3.015 (4.92)	1.850
Crossbred and Exotic cow		5.322	3.568		

Note : Figures in brackets indicate percentage standard errors.  
The overall average milk yield per animal for the year is worked out and is presented in table No. 16 below :

TABLE NO. 16

Average daily milk yield per animal in milk & per milch animal (overall)

Group No.	Name of the districts	Per day average milk yield (in Kg.)			
		Indigenous cow		Buffaloes	
		In-milk	Milch	In-milk	Milch
(1)	(2)	(3)	(4)	(5)	(6)
1.	Gr. Bombay	5.679	3.862	6.619	6.233
2.	Thane, Raigad	0.928	0.428	2.562	1.746
3.	Ratnagiri, Sindhudurg	0.641	0.281	1.283	0.751
4.	Nashik, Dhule, Jalgaon	1.221	0.519	2.755	1.559
5.	Ahmednagar, Pune	1.185	0.475	2.553	1.509
6.	Satara, Sangli, Kolhapur	1.152	0.556	2.567	1.726
7.	Solapur, Latur, Beed, O'bad	1.440	0.730	2.978	1.771
8.	Aurangabad, Jalna, Buldana	1.010	0.477	2.773	1.563
9.	Parbhani, Nanded	1.177	0.528	1.887	1.041
10.	Akola, Amravati, Yavatmal	0.777	0.306	2.613	1.373
11.	Wardha, Nagpur, Bhandara	0.716	0.259	3.002	1.604
12.	Gadchiroli, Chandrapur	0.404	0.167	1.809	0.896
State as a whole		1.021 (1.63)	0.440	2.719 (3.16)	1.650
Crossbred and Exotic cow		5.318	3.461		

Note : Figures in brackets indicate P.S.Es.

It is seen from the table No. 16, that the overall average milk yield per day/indigenous cow in-milk was 1.021 Kg. and that for exotic/crossbred cow in-milk was 5.318 Kg. In case of buffalo the same was 2.719 Kg.

The average milk yield per animals in-milk and per milch animal indicate abnormly less difference mainly because rearing of dry animals is costly in Bombay.

### 3.4 MILK PRODUCTION :

The estimates of milk production for each group of dists. for the three seasons and also for the entire year have been worked out for cows and buffaloes seperately and are shown in Table No.17,18,19 and 20.

TABLE NO. 17

#### Estimated milk production for summer season

Group No.	Name of the Dists.	Milk production (in 000 M.T.)	
		Indigenous cow milk	Buffalo milk
1	2	3	4
1.	Gr. Bombay	1,269	37,795
2.	Thane, Raigad	11,587	21,357
3.	Ratnagiri, Sindhudurg	3,728	2,946
4.	Nashik, Dhule, Jlagaon	40,725	46,118
5.	Ahmednagar, Pune	26,767	33,606
6.	Satara, Sangli, Kolhapur	16,569	118,924
7.	Solapur, Latur, Osmanabad, Beed	41,389	46,201
8.	Aurangabad, Jlana, Buldhana	21,531	21,949
9.	Parbhani, Nanaded	30,432	18,888
10.	Akola, Amravati, Yavatmal	28,374	30,231
11.	Wardha, Nagpur, Bhandara	18,512	21,321
12.	Gadchiroli, Chandrapur	7,677	5,737
State total		248,560 (6.77)	405,073 (6.29)
For exotic and crossbred cows		137,284	405,073

Note : Figures in brackets indicate percentage standard errors.

TABLE NO.18

Estimated milk production for Rainy Season

Group No.	Name of the dists.	Milk production (in '000 M.T.)	
		Indigenous cow	Buffalo
1	2	3	4
1.	Gr. Bombay	1.478	41.001
2.	Thane, Raigad	16.373	24.995
3.	Ratnagiri, Sindhudurg	8.050	6.723
4.	Nashik, Dhule, Jalgaon	46.210	53.200
5.	Ahmednagar, Pune	28.858	37.440
6.	Satara, Sangli, Kolhapur	17.031	111.635
7.	Solapur, Latur, Osmanabad, Beed	37.398	62.888
8.	Aurangabad, Jalna, Buldhana	25.707	21.887
9.	Parbhani, Nanded	25.819	20.374
10.	Akola, Amravati, Yavatmal	25.317	28.671
11.	Wardha, Nagpur, Bhandara	18.801	22.639
12.	Gadchiroli, Chandrapur	7.359	4.969
State Total		258.401 (5.81)	436.422 (5.98)
Crossbred cows		112.522	-

Note : Figures in brackets indicate the P.S.Es.

TABLE NO. #9

Estimated Milk Production for Winter Season

Group No.	Name of the Dists.	Milk Production (in '000 M.T.)	
		Indigenous cow	Buffalo
1	2	3	4
1.	Gr. Bombay	1.096	33.720
2.	Thane, Raigad	14.104	36.000
3.	Ratnagiri, Sindhudurg	7.302	7.446
4.	Nashik, Dhule, Jalgaon	36.008	66.550
5.	Ahmednagar, Pune	31.268	38.441
6.	Satara, Sangli, Kolhapur	19.700	130.287
7.	Solapur, Latur, Osmanabad, Beed	60.943	74.854
8.	Aurangabad, Jalna, Buldhana	23.649	26.203
9.	Parbhani, Nanded	27.553	22.114
10.	Akola, Amravati, Yavatmal	18.623	37.396
11.	Wardha, Nagpur, Bhandara	14.949	26.181
12.	Gadchiroli, Chandrapur	5.593	6.452
State Total		260.788 (5.90)	505.644 (5.62)
Crossbred cows		130.486	-

Note : Figures in brackets indicate percentage standard errors.

24  
TABLE NO. 20

Estimated milk production for the year (Overall)

Group Name of the Dists. No.	Milk production (in '000 M.T.)		
	Indigenous Cows	Buffalo	Total
1	2	3	4
1. Gr. Bombay	3.844	112.516	116.360
2. Thane, Raigad	42.064	82.352	124.416
3. Ratnagiri, Sindhudurg	19.080	17.115	36.195
4. Nashik, Dhule, Jalgaon	122.943	165.369	288.312
5. Ahmednagar, Pune	86.893	109.436	196.379
6. Satara, Sangli, Kolhapur	53.300	360.846	414.146
7. Solapur, Latur, Osmanabad, Beed	139.729	133.943	323.672
8. Aurangabad, Jalna, Buldhana	70.887	70.039	140.926
9. Parbhani, Nanded	83.805	61.376	145.181
10. Akola, Amravati, Yavatmal	72.314	96.298	168.612
11. Wardha, Nagpur Bhandara	52.251	70.141	122.402
12. Gadchiroli, Chandrapur	20.629	17.153	37.787
State total	767.749 (3.56)	1347.139 (3.43)	2114.888
Crossbred	380.292	-	-
Overall for Deshi + C.B. Cows	1148.041	-	-

(\*) Note :- Figures in brackets indicate percentage standard errors.

It is seen from the table no. 20 that the total milk production from bovines for the State, during the year was estimated as 2495.180 thousand tonnes, of this, the contribution from cows was about 46 percent, remaining 54 percent was from buffalo class. Per capita availability of milk during the year was found to be 97 Gms. based on the projected population for year under reference.

3.4.1 To study the seasonal variation of average milk yield and total milk production, the district groupwise average milk yield and total milk production during Summer, Rainy and Winter season is given in the table No. 21 for indigenous cows. As the group average are not worked out for crossbred cows, the State figures are given.

TABLE NO. 21

Table showing average per day per animal milk yield for indigenous cows in-milk and total milk production during Summer, Rainy and Winter seasons of the year 1987-88 (Milk yield in Kg. Milk Production in 100 M.T.)

Sr. No.	Group of Dists.	Summer		Rainy		Winter	
		Average Milk production	Total Milk Production	Average Milk production	Total Milk Production	Average Milk production	Total Milk Production
1	2	3	4	5	6	7	8
	Gr. Bombay	5.625	1.269	6.500	1.478	4.900	1.096

(\*) Overall for Cow + Buffaloes 2495.180

1	2	3	4	5	6	7	8
2.	Thane, Raigad	0.749	11.587	1.093	16.373	0.949	14.104
3.	Ratnagiri, Sindhudurg	0.383	3.728	0.776	8.050	0.756	7.302
4.	Nashik, Dhule, Jalgaon	1.219	40.725	1.351	46.210	1.089	36.008
5.	Ahmednagar, Pune	1.102	26.767	1.194	28.858	1.258	31.268
6.	Satara, Sangli, Kolhapur	1.085	16.569	1.076	17.031	1.297	19.700
7.	Solapur, Latur, Beed Osmanabad	1.266	41.389	1.183	37.398	1.863	60.943
8.	Aurangabad, Jalna Buldhara	0.927	21.531	1.093	25.707	1.008	23.649
9.	Parbhani, Nanded	1.290	30.432	1.071	25.819	1.172	27.553
10.	Akola, Amravati, Yavatmal	0.917	28.374	0.825	25.317	0.591	18.623
11.	Wardha, Nagpur, Bhandare	0.754	18.512	0.782	18.801	0.613	14.949
12.	Gadchiroli, Chandrapur	0.456	7.677	0.429	7.359	0.328	5.593
State Total		0.993	248.560	1.030	258.401	1.041	250.788
C.B. Cows State total		5.553	137.284	5.058	112.522	5.322	130.486

The table indicates that in the case of cows the seasonal variation is not note worthy though in the case of State as a whole the average milk yield and total milk production is minimum in the summer season and maximum in winter season. In the district groups Thane, Raigad and Ratnagiri, Sindhudurg the average and total milk production during summer season is considerably low as in these district the fodder and water scarcity exists in majority of villages during summer season. In the case of crossbred cows there is little seasonal variation, the average milk yield and total milk production being minimum during rainy season.

3.4.2 The data to study the seasonal variation in milk yield and milk production in respect of buffaloes is given in the table No. 22

TABLE NO. 22

Table showing average per day per animal milk yield for Buffaloes In-milk and total Milk Production during Summer, Rainy and Winter seasons of the year 1987-88 (Average milk yield in Kg. Milk Production in '000' M.T.)

Sr. No.	Group of Dists.	Summer		Rainy		Winter	
		Daily average milk yield/ Buff. in milk	Total milk production	Daily average milk yield/ Buff. in milk	Total milk production	Daily average milk yield/ Buff. in milk	Total milk production
1	2	3	4	5	6	7	8
1.	Gr. Bombay	6.670	37.795	7.177	41.001	6.000	33.7
2.	Thane, Raigad	2.030	21.357	2.300	24.995	3.349	36.000
3.	Ratnagiri, Sindhu- durg	0.677	2.946	1.487	6.723	1.668	7.446
4.	Nashik, Dhule, Jalgaon	2.366	46.118	2.664	53.200	3.211	66.550
5.	A'nagar, Pune	2.357	33.606	2.691	37.440	2.614	38.441
6.	Satara, Sangli Kolhapur	2.548	118.924	2.397	111.635	2.734	130.287
7.	Solapur, Latur, Osmanabad, Beed	2.253	46.201	3.110	62.888	3.558	74.854
8.	A'bad, Jalna Buldhana	2.679	21.949	2.555	21.887	3.083	26.203
9.	Parbhani, Nanded	1.779	18.888	1.864	20.374	2.016	22.114
10.	Akola, Amravati (*)	2.432	30.231	2.404	28.671	2.995	37.396
11.	Wardha, Nagpur Bhandara	2.673	21.321	3.065	22.639	3.275	26.181
12.	Gadchiroli, Chandrapur	1.816	5.737	1.599	4.969	2.007	6.452
State total/Overall		2.472	405.073	2.666	436.422	3.014	505.64

The above table indicates that in the case of buffaloes class the minimum daily average milk yield and total milk production is observed in Summer season and the same is increased by 7.8, 7.7 and 21.9 percent and 24.8 percent during the rainy and winter season. respectively. The Gr. Bombay results however, indicate the minimum average milk yield and production during winter season.

3.4.3 The data about the average per day milk yield and total milk production for the years 1985-86, 1986-87 and 1987-88 for cattle and buffalo class is given in Table No.23. The average milk yield per day and total milk production for crossbred cattle is being worked out since 1985-86.

It is observed from the table that the total milk production during 1985-86/ 1986-87 and 1987-88 for cattle class was 1,059,

1054 and 1050 thousand M.T. respectively. The increase in-milk production was mainly due to good rainy season in the State during 1987-88. The Buffalo milk production is also considerably increased (7%) as compared to 1986-87.

TABLE NO. 23

Statement showing comparative data about average milk yield per day per animal and total milk production for the years 1984-85, 1985-86 and 1986-87.

Sr. No.	Group of Districts	1985-86		1986-87			
		Other than C.B. cows	Buffaloe	Other than C.B. cows	Buffaloe		
		Average milk yield per day per animal Inmilk (Kg.)	Total milk production ('000 MT)	Average milk yield per day per animal Inmilk (Kg.)	Total milk production ('000 MT)		
1	2	3	4	5	6	7	8
1.	Cr. Bombay	4.609	3.110	6.183	104.813	4.943	3.336
2.	Thane, Raigad	0.815	36.986	2.856	92.333	0.696	31.743
3.	Ratnagiri, Sindhudurg	0.629	18.173	1.161	15.513	0.554	16.266
4.	Nashik, Dhule, Jalgaon	1.167	117.130	2.338	144.586	1.200	119.531
5.	A'nagar, Pune	1.025	75.447	1.981	86.020	1.127	82.049
6.	Satara, Sangli, Kolhapur	1.222	56.296	2.484	355.861	1.146	53.460
7.	Solapur, Latur, O'bad, Beed	1.289	125.091	2.492	157.886	1.229	116.924
8.	A'bad, Jalna, Buldhana	1.036	72.139	2.564	65.671	1.004	70.156
9.	Parbhani, Nanded	1.031	73.063	1.706	58.129	1.034	73.030
10.	Akola, Amaravati, Yavatmal	0.783	73.371	2.398	90.571	0.917	85.450
11.	Wardha, Nagpur, Bhandara	0.671	48.507	2.306	68.233	0.682	49.624
12.	Gadchiroli, Chandrapur	0.518	26.389	1.735	17.917	0.461	23.491
State total		0.968	725.702	2.431	1257.583	0.970	725.060
C.B. cows		5.170	332.824	-	-	5.010	329.238

Table No. 23 contd.

Sr. No.	Group of districts	1986-87		Other than CB cow		1987-88	
		Buffalo	Buffalo	Other than CB cow	Other than CB cow	Buffalo	Buffalo
		Average milk yield per animal in milk (Kg.)	Total milk production (000 MT)	Average milk yield per animal in milk (Kg.)	Total milk production (000 MT)	Average milk yield per animal in milk (Kg.)	Total milk production (000 MT)
1	2	3	4	5	6	7	8
1.	Gr. Bombay	6.144	104.151	5.679	3.844	6.619	112.516
2.	Thane, Raigad	2.665	85.201	0.928	42.064	2.562	82.352
3.	Ratnagiri, Sindhudurg	1.105	14.805	0.641	19.080	1.283	17.115
4.	Nashik, Dhule, Jalgaon	2.561	152.605	1.221	122.943	2.755	165.869
5.	A'nagar, Pune	2.527	108.989	1.185	86.893	2.553	109.486
6.	Satara, Sangli, Kolhapur	2.640	367.299	1.152	53.300	2.567	360.846
7.	Solapur, Latur, Osmanabad, Beed	2.283	140.697	1.440	139.729	2.978	183.943
8.	A'bad, Jalna, Buldhana	2.476	62.827	1.010	70.887	2.773	70.039
9.	Parbhani, Nanded	1.634	53.146	1.177	83.805	1.887	61.376
10.	Akola, Amravati	2.395	87.018	0.777	72.314	2.613	96.298
11.	Yavatmal						
11.	Wardha, Nagpur, Bhandara	2.655	61.631	0.716	52.261	3.002	70.141
12.	Gadchiroli, Chandrapur	1.800	17.346	0.404	20.629	1.809	17.158
State total		2.548	1255.715	1.021	767.749	2.719	1347.139
C.B. Cows		-	-	5.318	380.292	-	-

3.5 Availability of milk in bovine keeper households

The information regarding availability of milk was collected for the previous day of visit from 10,820 bovine keeper households. The details about production and purchase of milk are given in table number 24 for cow milk and buffalo milk separately.



TABLE NO. 24

Availability of milk in bovine keeper households

Category	Producing milk		Purchasing milk		Total milk produced + purchased	
	Percent- age of house- holds	Average Quantity of milk per house- holds (Kg.)	Percent- age of house- holds	Average quantity of milk per house- holds (Kg.)	percent- age of house- holds	Average quantity of milk per households (Kg.)
1	2	3	4	5	6	7
a) Only cow milk	62.7	1.600	56.8	0.355	61.7	1.392
b) Only Buff. milk	32.3	2.801	43.2	0.291	34.3	2.229
c) Both cow & Buff.milk	5.0	1.991	-	-	4.1	1.991
		2.917				2.917
Cow milk	100.0	1.629		0.355		1.429
Total	100.0		100.0		100.0	
Buff. milk		2.817		0.291		2.302
Overall avai- lability per day						
Cow milk	-	0.903	-	0.037	-	0.940
Buff. milk	-	0.860	-	0.023	-	0.883
Total	-	1.763	-	0.060	-	1.823

It was observed that on an average a bovine keeper households produced 903 Gm.; of cow milk and 860 Gm. of buffaloe milk whereas the quantity purchased was 37 Gm. of cow milk and 23 Gm. of Buffalo milk. The <sup>producer</sup> households are classified as 63 percent house- holds producing cow milk, about 32 percent producing buffalo milk while 5 percent households producing cow milk as well as buffalo milk.

3.6 UTILISATION OF MILK

The information about utilisation of milk on the previous day of the visit in the bovine keeper (milk producer) households is presented in Table No. 25.

TABLE NO. 25  
Utilisation of milk in bovine keeper households

Category	Percentage of milk					
	Consumed as fluid milk	Sold as fluid milk	Converted to milk products	Spilled	Balance	
1	2	3	4	5	6	
Only cow milk	35.54	59.26	3.23	0.46	1.51	
Only buffalo milk	24.05	72.40	1.55	0.06	1.94	
Both	Cow milk	47.71	44.56	4.85	0.40	2.47
	Buffalo milk	20.69	67.32	7.08	0.32	4.59
Overall	Cow milk	36.75	57.73	3.40	0.46	1.61
	Buffalo milk	23.77	71.96	2.02	0.09	2.16

The households producing only cow milk, consumed 36 percent milk and sold 59 percent milk, whereas those producing only Buffalo milk consumed 24 percent and sold 72 percent of the milk. On an average 37 percent of cow milk was utilised at home and 58 percent was sold out. The same was 24 percent and 72 percent in respect of buffalo milk.

3.7 DISTRIBUTION OF IN-MILK ANIMALS ACCORDING TO DAILY MILK YIELD IN DIFFERENT RANGES

The animals observed for milk production were classified according to different ranges and are presented in Table No. 26.

TABLE NO. 26  
Percentage distribution of in-milk animals according to daily yield

Sr. No.	Category	Season	Daily milk yield (Gm.)							Total
			0 to 500	Upto 501 to 1000	501 to 1001 to 2000	1001 to 2001 to 3000	2001 to 3001 to 5000	above 5000		
1	2	3	4	5	6	7	8	9	10	11
1)	Cow	Summer	3.42	24.16	34.65	32.38	4.45	0.79	0.15	100.00
		Rainy	2.22	25.60	32.41	33.22	5.69	0.76	0.10	100.00
		Winter	1.13	26.11	32.27	32.31	7.29	0.89	N	100.00
		Overall	2.26	25.29	33.11	32.63	5.82	0.81	0.08	100.00

1	2	3	4	5	6	7	8	9	10	11
2.	Buffaloes	Summer	0.42	3.47	9.88	24.19	30.39	25.76	5.89	100.00
		Rainy	0.28	2.58	7.64	21.34	27.69	29.71	10.75	100.0
		Winter	0.25	2.17	6.25	20.52	26.60	31.78	12.43	100.0
		Overall	0.31	2.69	7.78	21.87	28.08	29.32	9.95	100.0

It is observed that about 61 percent cows have yield upto 1000 Gm., while 89 percent buffaloes were producing milk above 1000 Gm.

### 3.8 Utilisation of milk in non-bovine keeper households

Data regarding utilisation of milk were collected from 4,220 non-bovine keeper households. Of these households, 19.2 percent households were found to be not utilising milk at all.

It was observed that on an average, the non-bovine keeper households purchased 289 Gm. of cow milk or 240 Gm. of Buffalo milk.

### 3.9 FEEDING PRACTICES

Data on feed and fodder fed to the animals were collected from the selected households having bovines. The data were collected from the selected households having bovines. The data were collected for the following types of animals (bovines) (i) in-milk (ii) dry and not calved even once, (iii) Adult males (iv) youngstock upto 3 years. The type of feed and fodder fed were green fodder, dry fodder and concentrates.

During the year under report, data were collected from 9,220 households having 34,302 cattle and 8,216 buffaloes. While collecting the data on feeding, information on whether the animals were only grazed, only stalled or both, was also collected. The season wise details about the number of animals observed for feeding practices are given in Table No. 27.

TABLE NO. 27

Number of animals observed for feeding practices

Category of animals	Cattle				Buffaloes			
	Summer	Rainy	Winter	Total	Summer	Rainy	Winter	Total
1	2	3	4	5	6	7	8	9
In-milk	2795	2538	1983	7316	1393	1163	1204	3760
Dry + Not calved even once	2454	2113	1346	5913	568	724	660	1952
Adult males	5045	4464	3870	13379	208	139	110	457
Youngstock upto 3 years	307	2787	1890	7694	795	637	614	2047
Total	13311	11902	9089	34302	2955	2663	2588	8216

TABLE NO. 30

Distribution of bovine fed with different types of feed and fodder either alone or in combination and average quantity fed per animal per day

Type of fodder fed	Average quantity fed per animal per day (Kg.)				Overall
	In-milk	Dry + N.C.	Adult males	Young stock	
1	2	3	4	5	6
<b>A) CATTLE</b>					
i) Green	9.969 (41.2)	7.263 (31.6)	9.328 (30.2)	3.792 (37.3)	7.940 (34.5)
ii) Dry	8.537 (72.4)	6.337 (79.6)	9.251 (84.4)	3.856 (70.0)	7.584 (77.8)
iii) Concentrates	1.488 (24.0)	1.215 (3.8)	0.953 (5.6)	0.621 (2.0)	1.236 (8.8)
<b>B) BUFFALOES</b>					
i) Green	10.401 (41.3)	7.193 (33.1)	6.049 (21.5)	3.558 (35.8)	8.075 (38.3)
ii) Dry	9.262 (75.0)	8.438 (72.9)	7.315 (82.0)	3.625 (68.6)	7.725 (73.4)
iii) Concentrates	2.257 (56.5)	1.544 (11.9)	0.400 (1.4)	0.909 (0.8)	2.135 (30.9)

(Note :- Figures in brackets indicate percentage of animals receiving some kind of feeding at home)

### 3.13 PRODUCTION AND UTILISATION OF DUNG

The data about production and utilisation of dung on the previous day of the visit was collected and seasonwise results are presented in Table No. 31. Here, the dung collected in the stalls is only considered.

TABLE NO. 31

Utilisation of dung collected from bovines at Stalls

Sr. No.	Season	Average Qty. of dung collected per day bovine (Kg.)	Estimated annual Qty. of dung collected ('000 MT)	Utilisation of dung (%)			Total
				For manure	For dung cakes	Other purposes	
1	2	3	4	5	6	7	8
1.	Summer	3.237 (14009)	-	68.5	24.7	6.8	100.00
2.	Rainy	3.192 (11404)	-	83.1	10.3	6.6	100.00
3.	Winter	3.451 (13312)	-	62.9	28.3	8.8	100.00
Overall		3.246 (38725)	24895.294	70.8	21.8	7.4	100.00

Note :- Figures in brackets indicate number of animals observed.

The average quantity of dung collected in stalls was about 3.2 Kg. per animal per day. The average quantity collected was maximum in rainy season. It is observed that, the dung produced is mainly used as manure, in rural areas. The quantity of dung collected in the year for the State was estimated as 24,895 thousand metric tonnes.

3.14 MORTALITY IN BOVINE

The mortality observed during the year in various categories of cattle and buffaloes is presented in Table No. 32.

TABLE NO. 32

Percentage of mortality in bovine

Sr.No.	Category	Annual mortality rate in	
		Cattle	Buffaloes
1	2	3	4
1.	In-milk	1.42	1.06
2.	Dry and not calved even once	2.55	3.05
3.	Adult males	1.00	3.98
4.	Youngstock	1.77	5.27
Overall		1.55	3.22

TABLE NO. 30

Distribution of bovine fed with different types of feed and fodder either alone or in combination and average quantity fed per animal per day

Type of fodder fed	Average quantity fed per animal per day (Kg.)				
	In-milk	Dry + N.C.	Adult males	Young stock	Overall
1	2	3	4	5	6
<b>A) CATTLE</b>					
i) Green	9.969 (41.2)	7.263 (31.6)	9.328 (30.2)	3.792 (37.3)	7.940 (34.5)
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iii) Concentrates	1.488 (24.0)	1.215 (3.8)	0.963 (5.6)	0.621 (2.0)	1.296 (8.8)
<b>B) BUFFALOES</b>					
i) Green	10.401 (41.3)	7.193 (33.1)	6.049 (21.5)	3.558 (35.8)	8.076 (38.3)
ii) Dry	9.262 (75.0)	8.438 (72.9)	7.315 (82.0)	3.625 (68.6)	7.725 (73.4)
iii) Concentrates	2.257 (56.5)	1.544 (11.9)	0.400 (1.4)	0.909 (0.8)	2.185 (30.9)

(Note :- Figures in brackets indicate percentage of animals receiving some kind of feeding at home)

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35  
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Overall		3.246 (38725)	24895.294	70.8	21.8	7.4	100.00

Note :- Figures in brackets indicate number of animals observed.  
The average quantity of dung collected in stalls was about 3.2 Kg. per animal per day. The average quantity collected was maximum in rainy season. It is observed that, the dung produced is mainly used as manure, in rural areas. The quantity of dung collected in the year for the State was estimated as 24,895 thousand metric tonnes.

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3.	Adult males	1.00	3.93
4.	Youngstock	1.77	5.27
Overall		1.55	3.22