



GOVERNMENT OF MAHARASHTRA

REPORT ON

MILK, EGG, WOOL AND
MEAT PRODUCTION

AND

LIVESTOCK AND POULTRY
KEEPING PRACTICES IN
MAHARASHTRA STATE

FOR THE YEAR 1979-80

GOVERNMENT OF MAHARASHTRA
DIRECTORATE OF ANIMAL HUSBANDRY,
PUNE

Report on the Integrated Survey Scheme
for estimation of Annual Production of
Livestock Products and study of Lives-
-tock and Poultry Keeping Practices in
Maharashtra State, during the year 1979-80.

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P R E F A C E

The Department of Animal Husbandry, Maharashtra State, Pune has launched an Integrated Sample Survey Scheme since 1970-71 to study the annual status of the major livestock products and the livestock keeping practices followed in the State. So far, nine such Annual Sample Surveys have been conducted in succession. The present survey report is based on the findings of the tenth annual survey in the series, as per the revised plan suggested by the Government of India.

Naturally, the report contains valuable information on milk, egg, wool and meat production in the State, during 1979-80. It also contains the detailed information about breeding, feeding and management practices followed in livestock and poultry keeping, information on utilization pattern of livestock products, mortality rates of livestock etc.

The success of this survey goes to the field staff as well as the office staff of the Integrated Survey Scheme of the Department. We are also indebted to the Indian Agricultural Statistics Research Institute, New Delhi for providing the sampling technique for the survey since inception.

It is hoped that the findings of the present survey will be of use to the Planners, Administrators and those interested in Animal Husbandry and dairying. The vital results of the survey are given at the beginning of the report for the sake of convenience.

Place: Pune-411 001.

P. D. MORASDAR,
DIRECTOR

Dated: 8 May, 1984.

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(ii)

wool
and
Some salient results at a glance from the survey, on
productio. of Milk, Egg/and Meat/study of livestock and
poultry rearing practices in Maharashtra State, during
1979-80.

Sr. No.	Item	Unit	Figures
1.	2.	3.	4.

I. GENERAL INFORMATION :

1. Size of sample observed

i) Number of districts observed	Number	25
ii) Number of villages observed	Number	375

2. Characteristics of villages

i) Having bovine	Percentage	100.0
ii) Having poultry	-do-	98.1
iii) Having sheep	-do-	17.6
iv) Having goats	-do-	97.3
v) Average number of households per village.	Number	176

3. Percentage of households rearing

i) Bovine	Percentage	58.1
ii) Poultry	-do-	30.7
iii) Sheep	-do-	1.4
iv) Goats	-do-	25.2
v) No livestock and poultry	-do-	26.2

II. MILK PRODUCTION AND BOVINE KEEPING PRACTICES :

of 1. Size/sample observed

i) Total bovine keeper households for milk recording and detailed study.	Number	6612
ii) Total bovines for detailed study	-do-	39,889
iii) Total in-milk bovine for milk recording		
a) Cows	-do-	5686
b) Buffaloes	-do-	2814

(iii)

1.-----2.-----3.-----4.-----

2. ESTIMATED NUMBER OF BOVINES

In-milk :

i) Cows in-milk	Lakh	17.48
ii) Buffaloes in-milk	-do-	10.07
iii) Cows in-milk to milch cows	Percentage	43
iv) Buffaloes in-milk to milch buffaloes	-do-	61

3. Per day milk production in the State.

i) Cow milk	Lakh Kg.	16.3 (15.9)
ii) Buffalo milk	(Lakh Ltrs.)	24.8 (24.1)
iii) Total	-do-	41.1 (40.0)

4. Annual milk production in the (State)

i) Cow milk	Lakh Kg.	5961.2 (5798.5)
ii) Buffalo milk	(Lakh Ltrs.)	9095.0 (8846.7)
iii) Total	-do-	15056.2 (14645.2)

5. Average daily milk yield per animal in-milk.

i) Cow	Kg.(Litre)	0.929 (0.904)
ii) Buffalo	Kg.(Litre)	2.126 (2.068)

6. Feeding practices of animals

i) Cattle kept on grazing alone	Percentage	15.7
ii) Buffaloes kept on grazing alone	-do-	11.2

7. Average quantity of feed/fodder fed per day, per animal

a) Cattle -	i) Green	Kg.	7.832
	ii) Dry	-do-	6.939
	iii) Concentrates	-do-	1.363
b) Buffalo	i) Green	-do-	9.178
	ii) Dry	-do-	7.879
	iii) Concentrates	-do-	1.937

8. Quantity of dung dropped in cattle shed per bovine per day

Kg.	3.309
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(iv)

1. 2. 3. 4.
9. Annual Mortality in

i) Cattle	Percentage	1.5
ii) Buffaloes	-do-	3.4

III. EGG PRODUCTION AND POULTRY REARING PRACTICES

1. Size of sample observed

i) Households observed detailed study	Number	15,185
ii) Total number of poultry birds observed		
a) Cocks	Number	5555
b) Hens	-do-	40702
c) Pullets	-do-	13650
d) Cockerels	-do-	4049
e) Chicks	-do-	40790
f) Total	-do-	1,04,746

2. Estimated number of layers in the State

a) Deshi	Lakh	58.99
b) Improved	-do-	15.81

3. Average number of eggs laid per layer per year

a) Deshi	Number	116
b) Improved	-do-	215

4. Estimated per day egg production in the State

a) Deshi	Lakh	18.73
b) Improved	-do-	9.29
c) Total	-do-	28.02

5. Estimated annual egg production in the State

a) Deshi	Crone	68.55
b) Improved	-do-	34.01
c) Total	-do-	102.56

6. Average number of deshi birds per 100 poultry keeper households

a) Cocks	Number	37
b) Hens	-do-	268
c) Cockerels	-do-	27

(v)

1. 2. 3. 4.

6. continued

d) Pullets	Number	90
e) Chicks	-do-	268
f) Total	-do-	690
7. <u>Average hatching percentage</u>	Percentage	74.7
8. <u>Average feed supplied per poultry bird/day</u>	Gms	17
9. <u>Annual mortality in poultry</u>	Percentage	18.7

IV. WOOL PRODUCTION AND SHEEP REARING PRACTICES.

1. Size of Sample

i) Number of flocks observed	Number	551
ii) <u>Total sheep observed</u>		
a) Rams and wethers	Number	925
b) Ewes	-do-	13829
c) Male lambs	-do-	1921
d) Female lambs	-do-	2554
e) Total	-do-	19229

2. Estimated number of sheep in the State

a) Rams and wethers	Lakh	1.57
b) Ewes	-do-	17.50
c) Lambs	-do-	5.23
d) Total	-do-	24.30

3. Average wool yield per sheep/year

a) Rams	Kg.	0.617
b) Ewes	-do-	0.534
c) Lambs	-do-	0.366
d) Overall	-do-	0.520

4. Total annual wool production Metric Tons 1125

1.	2.	3.	4.
<u>V) GOAT MILK PRODUCTION AND GOAT REARING PRACTICES</u>			
1) <u>Total goats observed</u>			
a) Bucks	Number		1383
b) Does	-do-		25809
c) Male kids	-do-		6309
d) Female kids	-do-		9265
e) Total	-do-		42766
2. <u>Average daily milk yield per goat in-milk</u>	Kg.		0.180
3. <u>Percentage of goats in-milk to milch goats</u>	Percentage		44.1
4. <u>Estimated number of goats in-milk</u>	No. in lakh		19.68
5. Total goat milk production			
i) Per day	Lakh Kg.		3.544 (3.447)
ii) For the year	(Lakh Litrs) -do-		1297.2 (1261.8)
6. <u>Annual mortality in goats</u>	Percentage		6.5

VI) MEAT PRODUCTION

1. <u>Average meat production per animal</u>			
a) Cattle	Kg.		101.391
b) Buffalo	-do-		121.081
c) Sheep	-do-		9.790
d) Goat	-do-		9.199
2. <u>Estimated number of animals slaughtered</u>			
a) Cattle	Lakhs		3.38
b) Buffaloes	-do-		2.59
c) Sheep	-do-		21.88
d) Goats	-do-		38.19
3. <u>Total meat production</u>			
a) Per day	'000 M.T.		0.334
b) For the year	-do-		122.180

CHAPTER I.

Introduction :- The present report is based on the tenth annual Integrated Survey conducted in the State, by the Department, for estimation of annual production of major livestock products, viz., milk, egg, wool meat and for study of livestock keeping practices, during the year 1979-80.

The data on production of milk, egg, wool and meat as well as on rearing practices of the major categories of livestock and poultry, were collected, as per the revised plan, suggested by the Ministry of Agriculture, Animal Husbandry Statistics Division, Government of India, New-Delhi. This procedure has been followed in this State, from 1977-78.

1.2. Description of the Survey ;

(i) Coverage : The survey was conducted all over the State, except Greater Bombay area, which is an entirely urbanised area, having only about 0.4 percent of livestock population and 1.5 percent of poultry population, of the State, as per 1978 livestock census. The Maharashtra State occupies 9.4 percent of the area and has 9.2 percent of the human population of the country (as per 1971 census). It lies between 16.4°-22.1° North latitude and 72.6°-80.9° East longitude. It has an area of 3,07,762 Sq. Km. It is bounded by Gujrath State to its north-west, Madhya Pradesh to its north-east, Andhra Pradesh, Karnataka and Goa to its south and by the Arabian sea to its west. The State consists of 26 districts with 235 tahsils comprising 35,778 inhabited villages and 289 towns, as per 1971 population census.

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ii) Topography :- Topographically the State is divided into two natural zones, viz. Deccan Plateau and the Coastal region, known as Konkan. The coastal region extends parallel to the Sahyadris (Western Ghats), from north to south, for about 720 Km., with an average width of 50 Km. covering in all, 31100 Sq. Km. of area.

The soils occurring in the State, are chiefly derived from basic volcanic rocks, which have more or less uniform mineral and chemical composition. They occupy about 80 percent, of the area of the State. In Vidharba region, the granitoid sediments have given different groups of soils. In the coastal region, heavy rainfall has led to formation of laterites and lateritic soils.

5,000 (iii) Climate :- The annual rainfall varies between 500 mm, to 5000 mm, from eastern part of the State to west side. In western portion i.e. Konkan, the rainfall is maximum and as high as 5000 mm, whereas it falls down to 600-700 mm. in other parts of the State. In some of the districts, the rainfall is even less than 500 mm.. The State has a tropical climate with three distinct seasons., i.e. Summer (mid-February to mid-June), Monsoon (mid-June to mid-October) and Winter (mid-October to mid-February).

(iv) Land utilisation pattern :- The State occupies an area of 307.6 lakh hectares. Of this, 17.3 percent is forest area and about 64.7 percent is net cropped area (as per 1978-79 season and crop Report). The area sown more than once accounts for only 5.4 percent. The area under permanent pastures and grazing land is 5.1 percent. The total cropped area is 199.15 lakh hectares. Of the total cropped area, 73.6 percent is under food crops while the rest is under non-food crops.

The total gross irrigated area is 12.1 percent of the total gross cropped area, and the area solely devoted to fodder crops, is only about 4 percent.

(v) Crops :- The crops of jowar, bajra and rice continue to be the important food crops in the State, which occupied 32.1, 8.0 and 7.5 percent of the gross cropped area, respectively, during the year 1978-79, and cotton, groundnut and sugarcane were the other important crops, occupying 18.16 percent of the total gross cropped area.

(vi) Livestock Population :- According to 1978 census, the Maharashtra State has 296.42 lakhs livestock. Out of the total livestock, 191.17 lakhs (64.5 percent) are bovines, 75.63 lakhs i.e. 25.5 p.c. are goats, 20.36 lakhs (i.e. 8.9 p.c.) are sheep, 2.26 lakhs (i.e. 0.86 p.c.) are pigs, 6.49 lakhs are horses and ponies, 0.51 lakhs are donkeys, while mules and camels numbered only 305 and 533, respectively. The total poultry is 137.51 lakhs.

(vii) Variation in livestock population :-
(1978 census over 1972 census)

The following table gives the percentage variation of livestock population according to 1978 census, over 1972 census figures.

Table No.1

Comparison of livestock census figures of 1972 and 1978.

Sr No.	Category	Population as per 1978 census	Population as per 1972 census	Percentage variation of 1978 over 1972.
1.	2.	3.	4.	5.
1.	Cattle	1,52,17,859	1,47,05,147	+ 3.49
2.	Buffaloes	38,98,716	33,00,746	+ 18.12
3.	Sheep	26,36,001	21,28,036	+ 23.87
4.	Goat	75,62,925	59,10,554	+ 27.96
5.	Pigs	2,26,188	2,02,936	+ 11.46
6.	Total Livestock	2,96,41,878	2,63,60,760	+ 12.45
7.	Total Poultry	1,87,50,817	1,22,16,567	+ 53.49

It is seen that there is an increase in all types of livestock as per 1978 census over the previous census. This increase is maximum in poultry (53.p.c.) followed by Goats (28.p.c.), Sheep (24.p.c.) and Buffaloes (18.p.c.). The total livestock has been increased by 12 p.c.

1.3 Period of field work :- The data for the present survey were collected during all the three seasons of the year 1979-80, as shown below:

1. Summer Season - March 1979 to June 1979.
2. Rainy Season - July 1979 to October 1979.
3. Winter Season - November 1979 to February 1980.

1.4 Sampling Plan :- A stratified multistage random sampling design has been adopted, for the survey. The districts are treated as different strata. The villages are primary or first stage sampling units. The households in the villages are the secondary stage sampling units. For milk recording, animals in-milk in the households constituted to be the third stage units. A maximum of two animals in-milk are observed for milk recording, from each of the selected household.

From each of 25 districts of the State, 10 p.c. villages are selected at random during the year, for collecting householdwise data, on number of Livestock and Poultry reared. Out of these villages one-third are selected for each of three seasons of the year. From these one-third of 10 p.c. selected villages, from each district, five villages are selected at random, in each season, for collecting details on-milk, egg, wool and meat production and on rearing practices of livestock and poultry.

On the basis of data collected from these five selected villages, districtwise (stratumwise) estimates are worked out for a season. The State estimates for a season are obtained, by pooling the districtwise estimates.

The annual estimates of production for the State are worked out, by pooling three seasonal estimates. The production of milk for Greater Bombay district, is estimated, on the basis of annual data received from Dairy Development Commissioner, Bombay.

1.5 Programme of field work :- For collection of data, regarding production and rearing practices of Livestock including poultry, one Survey Assistant is allotted five villages, selected randomly afresh for every season from a district. The Survey Assistant visits each selected village in three to four rounds and in a round, he makes a four day's halt in each selected village, for data collection. During the first round, he carries out house to house enumeration of Livestock and Poultry, in each of the selected village. From the second round onwards he collects data as per norms given in table No.2 below :

Table No.2
The details of data collection

Sr No.	Schedule number	Type of information to be collected.	Category of house holds etc., to be observed.	No. of households to be observed per day.
1.	2.	3.	4.	5.
1.	B-1	Milk production and bovine keeping practices.	Households having at least one bovine.	2
2.	B-2	Utilisation of Milk	Non-bovine keeper's households.	1
3.	P-1	Changes in number of poultry birds.	Any type of household	10
4.	P-2	Egg production and poultry rearing practices.	Households having at least one poultry bird.	5
5.	P-3	Utilisation of eggs.	Non-poultry keeper households.	2
6.	W-1) W-2) W-3)	Sheep rearing practices and wool production.	Households having sheep.	3
7.	S-1	Goat milk production and goat rearing practices.	Households having goats.	3
8.	T-1	Meat Production.	Households having livestock or poultry.	10
9.	T-2	Utilisation of meat	Households having <u>livestock</u> / <u>no or poultry</u>	2
10.	T-3) T-4	Meat production and other by-products obtained through slaughter.	Slaughter houses at district place.	

1.6 Details of data collected:- In this report, detailed tables on poultry keeping practices followed, have been presented, alongwith other important tables on bovine, sheep and goat rearing practices.

The details of information collected from the selected poultry keeper households are given as follows :-

- i) Number of poultry birds maintained, breedwise and sexwise.
- ii) Housing facilities for poultry birds maintained.
- iii) Daily feed supplied to poultry birds.
- iv) Production and utilisation of eggs in the households.
- v) Hatching practices followed.
- vi) Mortality in poultry birds, with their causes.
- vii) Vaccinations performed in poultry birds.

During the survey, the data on the following points were also collected.

- 1) Milk production and bovine rearing practices.
- 2) Wool production and sheep rearing practices.
- 3) Goat milk production and goat rearing practices.
- 4) Meat production and other by products obtained through slaughter.

1.7 Staff :

The following staff is sanctioned under the scheme.

Table No.3

Sr. No.	Name of the Post	Scale.	No. of Posts.
(1)	(2)	(3)	(4)
1)	Assistant Director (Statistical Survey) (in M.A.H.S, Jr. Class-I)	(680-1250) ..	1
2)	Assistant Field Officer. (Veterinary Officers).	(500-900) ..	6
3)	Survey Assistants.	(260-495) ..	28
4)	Investigators.	(500-900) ..	2
5)	Statistical Assistants.	(335-680) ..	4
6)	Accountant.	(335-680) ..	1
7)	Senior Clerk.	(335-680) ..	1
8)	Junior Clerk.	(260-495) ..	1
9)	Peons.	(200-280) ..	2

..7..

The field data are collected by the 28 Survey Assistants (one each for 25 districts and 3 as Leave Reserve). The Assistant Field Officers (Veterinary Graduates) supervise the work of data collection by the Survey Assistants. The data collected are compiled tabulated and analysed by the Statistical Assistant and Investigators. The Assistant Director of Animal Husbandry (Statistical Survey) is the overall incharge of the scheme for field work as well as administrative work.

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CHAPTER II

2.1 Characteristics of sample villages :-

During the year under report, a total of 375 villages were observed, for collection of data such as land possessed, breeding, feeding, management practices, etc., followed and for obtaining the details regarding production and utilisation of milk, eggs, wool and meat. The distribution of villages having a particular category of livestock and poultry, is presented below.

Table No.4

Distribution of villages having livestock/poultry

Sr. No.	Season	Percentage of villages having			
		Bovine	Poultry	Goats	Sheep
(1)	(2)	(3)	(4)	(5)	(6)
1.	Summer	100.00	95.20	92.00	12.80
2.	Rainy	100.00	100.00	100.00	25.60
3.	Winter	100.00	99.20	100.00	14.40
4.	Overall	100.00	98.13	97.33	17.60
Previous survey 1978-79		100.00	97.80	95.05	19.51

It is seen that, bovine are found in all the villages while poultry and goats are found in 98 p.c. and 97 p.c. of the villages, respectively. Sheep are found in only 18 p.c. of villages, because sheep population is mainly concentrated in Pune division, which accounts for nearly 66 p.c. of total sheep population of the State (as per 1978 Livestock Census).

2.2 Number of households per village :-

During the year 1979-80, a total of 66178 households and the livestock and the poultry reared by these households were enumerated by the Survey Assistants in 375 selected villages. The distribution of these villages, according to number of households per village, was found as given in table-5.

Table No.5

Distribution of villages according to number of households in the villages.

Sr. No.	Percentage distribution of villages having households.	Season			Overall	As per 1978-79 survey
		Summer	Rainy	Winter		
1.	2.	3.	4.	5.	6.	7.
1.	Upto 25	7.2	4.8	2.4	4.8	4.1
2.	26 to 50	8.8	8.0	7.2	8.0	8.5
3.	51 to 100	20.0	22.4	24.0	22.1	25.0
4.	101 to 150	22.4	19.2	20.8	20.8	21.4
5.	151 to 200	12.0	10.4	12.0	11.5	14.3
6.	201 to 300	19.2	21.6	16.8	19.2	13.5
7.	301 to 400	4.8	5.6	6.4	5.6	5.5
8.	401 to 600	4.8	6.4	8.8	6.7	6.0
9.	601 to 800	0.8	1.6	0.8	1.1	1.1
10.	above 800	-	-	0.8	0.2	0.6
11.	Total	100.0	100.0	100.0	100.0	100.0
Average number of households per village		162	181	187	(177)	(169)

(Figures in brackets indicate number of villages observed).

It is seen that 12.8 p.c. of villages had households, upto 50, 22.1 percent had from 51 to 100, 32.3 p.c. villages have households in range of 101 to 200, 19.2 p.c. had more than 300 households per village. The overall average number of households per village was found to be 177. As per previous survey of 1978-79, there were 169 households per village.

2.3 Households rearing livestock and poultry :-

From the total of 66,178 households observed, it was found that, 58.1 p.c. of them reared bovine, 30.7 p.c. households reared poultry and 25.2 p.c. households reared goats, either alone or in combination with other type of livestock or poultry. The households rearing sheep were very few i.e. only 1.4 p.c.

The distribution of households rearing only one type of livestock or poultry and in combinations, as observed, is given in Table No.6.

Table No.6

Distribution of households according to type of livestock and poultry reared.

Sr. No.	Classification of households	Percentage of households rearing					
		Bovine	Poultry	Goats	Sheep	Incombinations	No Livestock
1.	2.	3.	4.	5.	6.	7.	8.
1	Households rearing only one type of livestock or poultry.	25.1	5.4	5.4	0.1	36.5	26.5
2.	Total households rearing livestock or poultry in various combinations.	58.1	30.7	25.2	1.4	-	-
3.	As per 1978-79 survey.	60.0	31.8	28.7	1.3	47.4	23.7

(Number of households observed 66,178)

Comparing the above results with previous survey of 1978-79, it is observed that, the percentage of households not rearing any livestock or poultry has increased from 23.7 p.c. to 26.5 p.c. whereas the percentage of households rearing livestock or poultry (in combination), has come down from 47.4 p.c. to 36.5 p.c.

2.2.1 Number of Bovine reared :- The bovine keeper households were classified according to number of bovines reared. The distribution of bovine keeper households according to number of bovines reared is given in table No.7

Table No.7

Percentage distribution of bovine keeper households

Number of bovines reared							
1	2to3	4to5	6to8	9to12	13 & above	Total	Average bovine/hh
Percentage of households							
12.0	37.4	22.9	15.5	7.1	5.1	100.00	5

It was observed that 12 p.c. households reared only one bovine, 37.4 p.c. households reared 2 to 3 bovine, 22.9 p.c. households reared 4 to 5 bovine, 15.5 p.c. households reared 6 to 8 bovine, 7.1 p.c. households reared 9 to 12 bovine. The households rearing more than 12 bovine were only 5.1 p.c.

Out of the total bovine keeper households 61.8 p.c. households reared only cattle, 11.9 p.c. reared only buffalo and percentage of households rearing both in combination, were observed to be 26.3 p.c.

2.2.2 Animals reared :- The bovine keeper's households were also classified as those rearing either only females, or adult males or youngstock. It was found that 12.6 p.c. households reared only adult milch females, 7.3 p.c. reared only adult males and 2.8 p.c. of households had only youngstock. The remaining 77.3 p.c. bovine keeper households reared, the three categories, in combinations.

2.2.3 Number of adult female reared :- The data were classified according to number of adult females reared by the bovine keepers. The classification of these households is given in Table No. 8.

Table-No.8

Percentage distribution of bovine keeper's households, rearing adult females.

Number of milch Buffaloes reared.	Number of milch Cows reared							Total	Figures of previous survey (78-79)
	0	1	2	3	4	More than 4			
0	-	32.9	13.5	4.7	2.5	2.2	55.8	56.1	
1	14.3	4.3	2.9	1.8	0.8	0.5	24.6	29.7	
2	6.6	2.8	2.6	0.7	0.6	0.2	13.5	10.0	
3	1.4	1.0	0.5	0.4	0.3	0.2	3.8	2.4	
4	0.4	0.3	0.2	0.2	0.1	0.1	1.3	1.1	
more than 4	0.3	0.2	0.1	Neg	Neg	0.4	1.0	0.7	
Total	23.0	41.5	19.8	7.8	4.3	3.6	100.0	-	
Previous survey	24.7	43.5	18.0	6.4	3.9	3.5	-	100.0	

(Note:- Number of households rearing females 30089
Neg-Negligible.)

Out of the total bovine keeper households, 78.3 p.e. households reared milch bovine. The households rearing only cows was 55.8% compared with 56.1 p.c. in previous survey. 7 p.c. Similarly, the households having only buffaloes have been decreased from 24.7 percent to 23.0 percent. It was also observed that over 61 p.c. of the households had one to two cows, while about 38 p.c. of the households had one to two buffaloes.

2.2.4 Households having adult males.

The bovine keeper's households were also classified according to number of adult males reared. The classification is given in Table No.9

.. 13 ..
Table No.9

Percentage distribution of bovine keeper households rearing adult males, according to their number,

Adult buffaloes	Adult cattle males							Total	Figures of 1978-79 Survey.
	0	1	2	3	4	more than 4			
0	-	14.9	61.7	5.3	10.1	3.8	95.8	95.5	
1	1.0	0.5	0.4	0.2	0.1	0.1	2.3	2.4	
2	1.1	0.2	0.1	0.1	0.1	0.1	1.7	1.7	
3	0.1	Neg	Neg	Neg	Neg	Neg	0.1	0.2	
4	Neg	Nil	Neg	Nil	Neg	Neg	Neg	0.2	
more than 4	Neg	Nil	Nil	Nil	Nil	0.1	0.1	Neg	
Total	2.2	15.6	62.2	5.6	10.3	4.1	100.0	-	
Figures of 78-79 survey.	2.5	14.0	62.4	5.1	10.3	5.7	-	100.0	

(Note: Number of households observed 25,567
Neg-Negligible)

Out of the total bovine keeper households, 66.5 p.c. households possessed adult males. About 95.8 p.c. households had only cattle males, while 2.2 p.c. households had only buffalo males.

The households possessing one adult cattle male has been increased from 14.0 p.c. to 15.6 p.c. About 78 p.c. households had 1 to 2 adult cattle males while only 14 p.c. had 4 or more than 4 cattle males.

2.2.5 Households rearing youngstock.

Percentage of bovine keeper's households, rearing young-stock according to age groups, is given in table 10.

Table-10.10.

Distribution of households rearing young calves.

Sr. No.	Category of calves reared.	Households rearing			Total	Figures of 1978-79 survey.
		Only cow calves	Only buffalo calves	Both cow and buffalo calves.		
1.	2.	3.	4.	5.	6.	7.
1	Below 1 year	27.7	7.3	2.2	37.2	31.8
2	1-3 years	19.6	10.9	3.0	33.5	40.2
3	Both age groups	16.4	2.9	10.0	29.3	28.0
Total		63.7	21.1	15.2	100.0	100.0
Figures of 1978-79 survey.		65.0	21.0	14.0	100.0	-

(Note:- Total number of households rearing youngstock 24,277).

The households having only cow calves were about 64 p.c. while those having only buffalo calves were 21 p.c. In about 37 p.c. of the households, calves only below 1 year were observed.

2.2.6 Households rearing poultry birds.

The households rearing poultry birds, were classified according to total number of poultry birds reared, per household. The distribution is given in Table No.11.

Table No.11

Distribution of poultry keeper's households according to total number of poultry birds reared.

	Number of poultry birds reared							
	1	2	3	4	5	6	7	8
Percentage of hhs.		16.5	16.7	9.5	8.7	7.5	5.9	4.8
Cumulative total		16.5	33.2	42.7	51.4	58.9	64.8	69.6

	Number of poultry birds reared.							
	8.	9.	10.	11to20	21to50	Above 50	Average number of birds/hh.	As per survey 78-79
Percentage of households		4.3	3.6	3.7	14.9	3.7	0.2	8
Cumulative total		73.9	77.5	81.2	96.1	99.8	100.00	-

(Note:- Number of households observed 20,341)

About 33 p.c. households had 1 to 2 birds. 36 p.c. had 3 to 7 birds, 12 p.c. had 8 to 10 birds and remaining 19 p.c. households had more than 10 birds each. It was also observed that about 2.7 p.c. poultry keeper households did not rear any adult female birds. The remaining households are distributed according to number of adult female birds reared and the same is presented in table No. 12.

The overall average number of birds reared per household was 8. The same was 7, during 1978-79.

Table No.13

Percentage distribution of goat rearing households.

		Number of goats reared.							
		1.	2.	3.	4.	5.	6.	7.	
Percentage of hhs		24.4	25.5	14.8	9.8	6.0	4.5	2.7	
Cumulative total		24.4	49.9	64.7	74.5	80.5	85.0	87.7	
		Number of goats reared							
		8.	9.	10.	11 to 20	21 to 50	Above 50	Average number of goats per household	As per 1978-79 survey
Percentage of households.		2.3	1.6	1.4	3.8	1.3	1.9	5	4
Cumulative total		90.0	91.6	93.0	96.8	98.1	100.0		

(Note:- Number of households observed 16,671)

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It will be seen that 80.51% households reared goats upto 5 per household. The average number of goats per household was also five. The corresponding figure for 1978-79 survey was 4.

2.2.8 Households rearing Sheep :-

Out of the total households enumerated in the survey the number of households rearing sheep were 916. Out of these, 89.2 p.c. were of stationary type. The sheep rearing households were classified according to number of rams heading the flocks. The distribution of the same is given in table No.14.

Table No.14

Number of rams heading the flocks.

No. of rams.	Percentage of flocks			Average number of Ewes per ram per flock			Average flock size.		
	Sta.	Mig.	Over-all.	Sta.	Mig.	Over-all.	Sta.	Mig.	Overall
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
0	39.9	27.3	38.5	-	-	-	22	24	22
1	40.3	55.6	41.9	32	31	32	38	42	38
2	10.5	12.1	10.6	23	52	26	57	119	65
3	1.8	2.0	1.9	19	10	18	65	46	62
4	1.5	1.0	1.4	11	5	11	56	59	56
5	1.2	2.0	1.3	6	22	9	54	156	71
6	1.4	-	1.2	2	-	2	22	-	22
7	0.2	-	0.2	6	-	6	48	-	48
8	0.2	-	0.2	1	-	1	20	-	20
9	0.2	-	0.2	1	-	1	19	-	19
10	1.0	-	0.9	2	-	2	44	-	44
More than 10	1.8	-	1.7	1	-	1	43	-	43
Total	100.0	100.0	100.0	20	36	21	34	49	36
As per 1978-79 survey	-	-	-	16	35	19	31	47	34

It was observed that 39 p.c. of the flocks were having no rams while 42 p.c. of the flocks were having only one ram. The average number of ewes per ram worked out to be 21, the same was higher for migratory flocks, where 36 ewes were headed by a ram.

The average flock size was observed to be 36 which was 49 for migratory and it was 34 for stationary flocks. The number of sheep reared, per 100 households for stationary and migratory type of flocks, in table No. 15.

4 is given

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Table No.15

Number of sheep of each category observed per 100 flocks.

Sr. No.	Type of flock	Number of sheep per 100 flocks observed.			
		Rams	Ewes	Lambs	Total
1.	2.	3.	4.	5.	6.
1.	Stationary	135	2698	578	3411
2.	Migratory	100	3614	1180	4894
	Overall	131	2797	643	3571
	As per 78-79 survey	137	2587	667	3391

(Note:- Number of flocks observed 916)

It was observed that the flock size was slightly increased from 34 sheep per flock in 1978-79 survey, to 36 sheep per flock during the current survey.

Milk Production and bovine keeping practices.

3.1 Milk Production.

The estimate of milk production in a season is obtained as a continued product of (i) estimate of average milk yield per day per animal in milk, (ii) estimate of number of animals in milk in the season and (iii) number of days in the season. The annual production in the State is obtained, as a total of the three seasons estimates. The estimate for Greater Bombay was worked out, on the basis of the data received, from the Dairy Development Commissioner, Bombay, since the Greater Bombay district is excluded from the scope of this survey. All these estimates are worked out separately, for cows and buffaloes.

3.1.1 (I) Estimated number of milch animals and animals in milk.

The 'Ratio method of estimation' was adopted, to estimate the number of animals in-milk, separately for cows and buffaloes. The ratio was worked out, between the total number of animals in-milk enumerated, and the corresponding total, as per latest census, in all the sampled village groups, in the district. This ratio was then multiplied by the total number of animals in milk, as per latest census, in the entire district.

The estimates so obtained, for different seasons of each district, were suitably pooled, in proportion to relative period of the season, to obtain an estimate for average number of animals in-milk, in the year. An exactly similar procedure was adopted to obtain an estimate of the number milch animals. These estimates (of the number of milch animals and animals in-milk), have been utilised to work out few other results, which are presented in this chapter.

The seasonwise estimated number of in-milk and milch animals are given below.

Table No.16

Seasonwise estimated number of in milk and milch animals.

Season	Estimated number of animals (in lakhs)			
	In milk		Milch	
	Cows	Buffaloes	Cows	Buffaloes
1.	2.	3.	4.	5.
Summer	16.87 (4.3)	9.59 (8.2)	40.48	16.91
Rainy	16.91 (6.0)	8.82 (7.5)	39.22	16.67
Winter	18.67 (4.3)	11.80 (6.6)	42.85	16.60
Overall	17.48 (2.9)	10.07 (4.3)	40.85	16.73
Previous survey 78-79	16.34 (2.1)	9.32 (2.9)	40.75	16.64
1978 census	18.49	12.14	41.14	18.38

(Note:- The figures in brackets indicate percentage standard errors.)

It will be seen that, under all categories, the survey figures were lower estimates as compared with census figures. There may be many reasons for this discrepancy between the census & survey estimates. One disadvantage of the survey was the artificial nature of the primary sampling unit (census village), which makes it difficult to be identified, due to lapse of some period after the census. The 1978 census was conducted in December with reference date as 15.12.78. Hence, the census figures denote only the livestock number for winter season, whereas, the survey figures estimate livestock number for all the three seasons.

This explains partly, the difference in estimated number of in-milk and milch animals, particularly in buffaloes.

7.1.2 Number of animals in-milk, expressed as proportion of milch animals.

The estimates of the proportions of animals in-milk to milch animals, in different seasons, based on the survey data, are given below.

Table No.17

Percentage of animals in milk to milch animals.

Season	Cows	Buffaloes
(1)	(2)	(3)
Summer	42	57
Rainy	43	53
Winter	44	71
Overall	43	60
Previous survey (78-79)	40	56
1978 census	45	66

It is seen from the table that in respect of both cows and buffaloes, survey figure under estimates the percentage of animals in milk as compared to census figures. Since, the reference date of 1978 census was 15 December 1978, the proportion of animals in milk referes, only to that part of the year. The survey estimates for winter Season, are nearer to census estimates, particularly, in respect of cows. The seasonal fluctuations, in proportion of number of animals in-milk, are reflected in the survey estimates.

3.2 Average milk yield per day per animal in milk and per milch animals.

Estimated of average milk yield per day per animal in milk and per milch animal (in milk + dry) in respect of each season, both for cows and buffaloes separately, have been presented below.

Table No.18

Average daily milk yield per animal in-milk and per milch animal (in kg.)

Season	Average milk yield per day (in kg.)			
	Cows		Buffaloes	
	In-milk.	Milch	In-milk	Milch
1.	2.	3.	4.	5.
Summer	0.859 (2.7)	0.358	1.912 (7.2)	1.085
Rainy	0.872 (6.3)	0.375	2.139 (4.7)	1.131
Winter	1.039 (3.5)	0.452	2.281 (3.5)	1.621
Overall	0.929 (2.6)	0.396	2.126 (3.3)	1.276
Previous survey 1978-79	0.835 (1.9)	0.330	2.216 (3.7)	1.096

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

The average milk yield is maximum in Winter Season and least in Summer Season, both for cows and buffaloes. It is also noted that the in-milk buffalo yields more than twice, as much as in-milk cow.

3.3 Milk Production.

The estimates of total milk production for the State (excluding Gr.Bombay), for each season and also for the entire year, have been worked out, for cows and buffaloes separately, and are shown in the Table No. 19.

Table No. 19

Estimated of the annual milk production
in Maharashtra State (1979-80)

Season	Milk Production (in '000 tonnes)		
	Cow Milk	Buffaloe milk	Total
1.	2.	3.	4.
Summer	176.85 (4.8)	223.85 (6.1)	400.70
Rainy	181.38 (7.2)	231.93 (6.9)	413.31
Winter	234.58 (7.3)	325.79 (9.3)	560.37
Total (exce- -pt Gr.Bombay	592.81 (3.8)	781.57 (4.3)	1374.38
Gr.Bombay	3.31	127.93	131.24
Total for the State during 1979-80.	596.12	909.50	1505.62
Previous year 1978-79.	503.87	910.39	1414.26

(Note:- The figures in brackets indicate percentage standard errors).

The annual milk production in the State, excluding Gr.Bombay was 1374.38 thousand tonnes, out of which about 43 p.c. was accounted for, by cow milk and the rest, by buffalo milk. The annual estimated milk production, including Gr.Bombay was 1505.62 thousand metric Tons. This included 40 p.c. of milk from cows and the remaining from buffaloes.

3.4.1 Availability of milk in bovine keeper households.

Data regarding availability of milk, were collected from 6,612 bovine keeper households. The details about production and purchase of milk are given in Table No. 20 for cow milk and buffalo milk, separately.

Table No. 20

Availability of milk in bovine keeper households (kg.)

Classification of households producing milk.	Milk production		Milk purchased		Total milk (produced + purchased)	
	Percent- tage of hou- s-holds.	Average quantity of milk per hhd.	Percent- tage of hhd.s.	Average quantity of milk per hhd.	Per- cent- age	Average quantity of hhd. milk per hhd
1.	2.	3.	4.	5.	6.	7.
Only cow milk	63.7	1.390	69.3	0.232	65.2	1.060
Only buff. milk	27.4	2.773	30.7	0.277	28.3	2.046
Both, cow & Buff. milk	8.9	1.987 2.975	nil -	nil nil	6.5	1.987 2.975
Cow milk	100	1.463	100	0.232	100	1.144
Buff. milk		2.822		0.277		2.219
Previous survey (1978-79)	Cow - Buff-	1.072 2.231	3.303	0.232 0.596	0.828	1.304 2.827 4.131
Overall availability per bovine keeper hhd per day	Cow Buff Total	0.569 0.549 1.118	- - -	0.032 0.017 0.049	- - -	0.601 0.566 1.167
Overall availability as per previous survey (1978-79)	Cow Buff Total	0.460 0.458 0.918	- - -	0.031 0.029 0.060	- - -	0.491 0.487 0.978

/keeper It was observed that a bovine/household produced 569 gms of cow milk and 549 gms of buffalo milk and purchased 32 gms cow milk and 17 gms buffalo milk.

3.4.2 Utilisation of milk

/keeper The utilisation of cow and buffalo milk for various purpose per bovine/household was estimated and the same is given in Table No. 21.

Table No.21

Daily utilisation of cow and buffalo milk per bovine keeper household.

Classification	Percent of milk				
	Consumed as fluid milk.	Sold as fluid milk	Converted in to milk products	Spoiled.	Balance
1.	2.	3.	4.	5.	6.
Only Cow milk	57	38	2	-	3
Only Buff.milk	32	61	4	1	2
Both Cow milk & Buff.milk	33	62	1	2	2
	21	64	8	5	2
Overall Cow milk	53	42	2	1	2
Buff.milk	29	62	5	2	2
Previous survey (1978-79)					
Cow.	45	48	5	-	2
Buff.	40	49	11	-	-

The households, producing only cow milk, consumed 57 p.c. milk and sold 38 p.c. milk, where as those producing only buffalo milk, consumed 32 p.c. sold 61 p.c. of the milk. On an average 53 p.c. of cow milk was utilised at home and 42 p.c. was sold out while 29 p.c. of buffalo milk was utilised and 62 p.c. was sold out by milk producers households. Only 1 p.c. cow milk and 2 p.c. buff. milk was spoiled.

3.5.3 Availability and utilisation of milk in non-bovine keeper households.

Data regarding availability of milk were collected from 3092 non-bovine keeper households. Of these households, 2.4 p.c. households were found to be not utilising milk at all.

A non bovine keeper households purchased 130 gm of cow milk @ Rs. 2.09/kg. and 178 gm of buffalo milk @ Rs. 2.24/Kg. Further each household purchased/produced 179 gm of goat milk All the milk was consumed in the fluid form.

FEEDING PRACTICES

3.6.1

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

During the year, the data were collected from 6612 households having 33121 cattle and 6768 buffaloes. While collecting the data on feeding, information on whether the animals were only grazed or only fed at home or both, was also collected. The seasonwise details, about the number of animals observed for feeding practices, are given in Table No.22

Table No. 22

Number of animals observed for feeding practices.

Category of animals	Cattle				Buffalo				
	Summer	Rainy	Winter	Total	Summer	Rainy	Winter	Total	
	1.	2.	3.	4.	5.	6.	7.	8.	9.
In milk	2438	1844	2383	6665	973	835	1143	2951	
Dry+ Not calved even once.	1930	1969	2091	5990	494	681	612	1787	
Working adult males	3871	3770	4275	11916	130	95	130	355	
Youngstock upto 3 yrs.	2854	2899	2797	8550	422	569	684	1675	
Total	11093	10482	11546	33121	2019	2180	2569	6768	
Total (78-79)	7071	7909	9719	24699	1529	1469	1568	4546	

3.6.2 Distribution of animals according to those grazed, only stalled and both.

The details are given in Table No. 23.

It was observed that in respect of cattle, 81 p.c. of the animals were both grazed and stalled, while about 4 p.c. were only stalled. More number of working males and young calves (about 5 and 4 p.c. each) were only stalled, as compared with other type of cattle.

In respect of buffaloes, 89 p.c. of the animals were both grazed & stalled. Maximum, i.e. 4 p.c. of calves and 6 p.c. of adult male buffaloes were only stalled.

3.6.3 Average quantity of feed/fodder fed per day per animal (in kg.)

The seasonwise details of average quantity of feed/fodder fed per day per animal, for different categories of bovines, are presented in table No. 24.

.. 29 ..
Table No.23

Percentage distribution of animal according to general feeding practices followed,
as only grazed (G), only stall fed (S) or both (G+S)

Category of Animals	SUMMER			RAINY			WINTER			OVERALL		
	G	S	G+S	G	S	G+S	G	S	G+S	G	S	G+S
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
<u>CATTLE</u>												
1. In Milk	2.7	2.1	95.2	10.2	2.2	87.6	12.2	1.6	86.2	3.2	2.0	89.8
2. Dry + N.C.	14.3	2.5	83.2	33.8	1.2	65.0	35.0	1.0	64.0	28.0	1.5	70.5
3. Adult Males	3.1	7.0	89.9	12.8	2.2	85.0	14.3	15.4	80.3	10.2	4.9	85.9
4. Young Stock up to 3 years.	17.4	5.2	77.4	32.7	3.9	63.4	29.6	3.7	66.7	26.6	4.2	69.2
Overall	8.6	4.7	86.7	21.8	2.5	75.7	21.3	3.4	75.3	15.7	3.5	80.8
Previous year (78/79)	6.6	11.9	81.5	6.7	1.2	92.1	7.6	2.0	90.4	7.3	4.6	88.1
<u>BUFFALOES</u>												
1. In milk	0.2	1.6	98.2	2.5	2.8	94.7	2.1	1.0	96.9	1.6	1.7	96.7
2. Dry, not calved even once	3.2	1.8	95.0	28.9	1.8	69.3	33.0	1.3	65.7	23.2	1.6	75.2
3. Adult Males	6.9	1.5	91.6	13.7	7.4	78.9	10.8	8.5	80.7	10.1	5.6	84.3
4. Young Stock up to 3 years.	20.1	4.7	75.2	29.9	4.9	65.2	15.1	2.9	82.0	21.4	4.1	74.5
Overall	5.6	2.3	92.1	18.4	3.2	78.4	13.3	2.0	84.7	11.2	2.5	86.3
Previous year (78-79)	4.4	10.3	85.3	3.3	2.3	94.4	4.0	8.8	87.2	3.9	7.2	88.9

Table No. 24

Seasonwise average quantity of feed/fodder fed (kg.)

Type of feed	Average feed fed per day per animal in kg.							
	Cattle				Buffalo			
	In Milk	Dry + N.C.	Adult Males	Young -stock	In Milk	Dry + N.C.	Adult Males	Young -stock
1.	2.	3.	4.	5.	6.	7.	8.	9.
<u>SUMMER</u>								
Green	0.227	0.206	0.271	0.080	1.053	0.866	0.469	0.263
Dry	7.345	6.127	8.300	3.342	9.988	8.674	8.203	3.806
Conc-entra-tes.	0.379	0.036	0.122*	0.025	0.842	0.035	0.096	0.017
<u>RAINY</u>								
Green	5.869	4.371	5.719	2.525	8.319	6.390	6.010	2.631
Dry	1.802	1.375	3.133	0.721	2.482	1.588	1.399	0.820
Conc-entra-tes.	0.245	0.022	0.027*	0.010	0.750	0.023	-	0.005
<u>WINTER</u>								
Green	2.820	1.982	2.603	1.245	4.988	2.570	3.392	1.994
Dry	4.923	3.030	5.617	1.785	6.306	3.734	5.169	2.060
Conc-entra-tes.	0.193	0.012	0.032*	0.017	0.792	0.006	0.054	0.002
<u>OVERALL</u>								
Green	2.715	2.311	2.831	1.290	4.634	3.555	3.022	1.754
Dry	4.946	3.484	5.703	1.944	6.438	4.282	5.271	2.078
Conc-entra-tes	0.275	0.023	0.060*	0.017	0.796	0.021	0.055	0.007
<u>Results of Previous Survey (1978-79).</u>								
Green	3.301	2.560	3.016	1.485	5.988	4.565	3.418	2.159
Dry	5.393	4.723	5.896	2.461	6.264	5.333	4.926	2.224
Conc-entra-tes	0.125	0.048	0.176	0.021	0.680	0.079	0.058	0.011

(Note:- The averages have been worked out considering the total number of animals observed for feeding including the animals kept on grazing alone.)

It is seen from the table that maximum quantity of green and dry fodder is fed to adult males in cattle class, whereas more quantity of concentrates is fed to in-milk cows. In buffalo class, more quantity of feed/fodder is fed to in-milk buffaloes, than any other category. When compared with the previous survey results, it is seen that more quantity of concentrates is fed to in milk animals during 1979-80.

3.7.1 Mortality :- Mortality according to category of animals

Data on mortality amongst cattle and buffaloes, were collected during the survey pertaining to a period of 4 months, prior to the date of survey. On analysing the same, it was seen that the annual mortality percentage in cattle was 1.5 p.c. as against 1.0 p.c. during 1978-79 (previous survey) and in buffaloes, it was 3.4 p.c. against 3.1 p.c. during last survey. The results are presented in Table No. 25.

Table No.25

Percentage of mortality in bovines

Category of animal	Annual mortality rate in	
	Cattle	Buffaloes
1.	2.	3.
1. In milk	1.9	1.2
2. Dry and not calved even once	1.3	1.0
3. Adult males	0.8	2.5
4. Young stock	2.3	8.5
5. Overall	1.5	3.4
6. Results of previous survey (1978-79)	1.0	3.1

The table shows that maximum mortality was observed in buffalo calves (8.5 p.c.) while in cattle class the same was 2.3 p.c.

3.8 Production and utilisation of dung.

Seasonwise data on production and utilisation of dung on the previous day of the visit were collected. The data pertained to the dung, that was dropped in stalls, or at home. The details are given in Table No. 26.

Table No. 26

Utilisation of the dung collected from bovines at stalls.

Season	Average quantity of dung collected per day (kg.)	Utilisation percentage of dung collected			
		For manure	For dung cakes	For other purposes	Total
1.	2.	3.	4.	5.	6.
Summer	3.188 (11976)	84.7	13.8	1.5	100.0
Rainy	3.263 (3.472)	96.8	1.9	1.3	100.0
Winter	3.472 (12387)	80.4	17.8	1.8	100.00
Overall	3.309 (36266)	87.1	11.4	1.5	100.0
Results of previous survey.	3.172 (25541)	82.9	14.6	2.5	100.0

(Note:- Figures in brackets indicate no. of animals observed).

It is observed that the dung produced is mainly used as manure, by the cultivators in rural areas.

From the above table, it will be seen that the average quantity of dung collected in stalls was 3.3 kg. per animal per day. The quantity of dung collected was the maximum in winter season and it was the minimum in summer.

Regarding utilisation of dung, it will seem that 87.1 p.c. was used as manure, 11.4 p.c. for dung cakes and 1.5 p.c. for other purposes.

Egg production and poultry rearing practices.

4.1.1 Sample size observed :- For collection of data about egg production and poultry rearing practices, a cluster of 5 households was observed daily, from the 368 villages having poultry, out of the total of 375 villages selected. The details about the number of poultry keeper households and total poultry birds observed categorywise are given in Table No. 27 below.

Table No.27Number of villages and poultry birds observed.

Sr. No.	Season	Number of villages having poultry	Number of poultry keeper households observed.	Number of poultry birds observed.					
				Cocks	Hens	Cock Hens	Pull Chicks	Total	
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1.	Summer	124	4967	2034	13524	1534	5430	11490	34012
2.	Rainy	125	4540	1638	12276	823	2812	8755	26304
3.	Winter	119	5678	1883	14902	1692	5408	20545	44430
Total		368	15185	5,555	40,702	4,049	13650	40790	104746
Previous survey (1976-79)		356	13439	5253	34150	5398	8525	41214	94540

During the year, data about egg production were collected from 40702 layers, and data on breeding, feeding and other managerial practices followed, were collected in respect of all the 1,04,7,46 poultry birds from 15,185 poultry keeper households.

4.1.2 Average number of poultry birds per 100 poultry keeper households.

The average number of poultry birds reared, per 100 poultry keeper households, on the day of visit, is presented in Table No. 28.

.. 3 ..
Table No. 28

Average number of poultry birds reared,
per 100 poultry keeper households.

Sr. No.	Season	Average number of birds per 100 poultry keeper households.					
		Cocks	Hens	Cock- -erels	Pullets	Chicks	Total
1.	2.	3.	4.	5.	6.	7.	8.
1.	Summer	41 (6)	272 (40)	31 (4)	109 (16)	231 (34)	685 (100)
2.	Rainy	36 (6)	270 (47)	18 (3)	62 (11)	193 (33)	579 (100)
3.	Winter	33 (4)	262 (34)	30 (4)	95 (12)	362 (46)	782 (100)
	Overall	37 (5)	268 (39)	27 (4)	90 (13)	268 (39)	690 (100)
	Previous survey(78-79)	39 (5)	254 (36)	40 (6)	63 (9)	307 (44)	703 (100)

(Figures in brackets indicate percentages of birds to total poultry birds.)

The average number of birds reared per 100 poultry keeper households was minimum (i.e. 579) during rainy season, and maximum (i.e. 782) during winter season. On an average there were 690 birds per 100 poultry keeper households, consisting of 37 cocks, 268 hens, 27 cockerels, 90 pullets and 268 chicks. The overall composition of poultry stock reared per 100 poultry keeper households, was observed to be 5 p.c. cocks, 39 p.c. hens 4 p.c. cockerels, 13 p.c. pullets, and 39 p.c. chicks.

4.2 Housing facilities for poultry :-

From the data collected about housing facilities provided for the poultry birds the practice of keeping the birds open and free in day time and keeping them under basket or in some other temporary flock house during night hours, was observed to be the common practices followed, in most of the households.

Alongst the total households observed, 78.0 p.c. households kept the birds under basket, 21.8 p.c. households provided some temporary shelter in the form of Khurada and the remaining 0.2 p.c. households had no specific system for keeping the poultry birds.

In case of poultry rearing system adopted, it was observed that in 81.6 p.c. of the total households, there was free range system adopted while in remaining 18.4 p.c. households, the semi-intensive rearing system was adopted.

Egg Production

4.3 Seasonwise estimated number of layers, laying percentage and total egg production during the year.

The total egg production from deshi birds in the State, during the year, was estimated on the basis of data collected in the survey and that from improved birds was estimated, from the data received, from commercial poultry farms.

The total egg production in the year was 68.55 crores from deshi birds and 34.01 crores from improved birds, giving a total of 102.56 crores of egg production during 1979-80. In the previous year i.e. in 1978-79 the production figures were 60.80 crore eggs from deshi birds and 30.55 crores from improved birds.

4.3.1 Hatching of eggs :-

The detail information regarding latest hatches taken by the householders, during the year, prior to the visit of Survey Assistant was collected. The data on number of eggs set for hatching, method of hatching adopted, number of hens used for brooding and number of chicks produced, were obtained from the selected poultry keeper households. The results are given in Table No. 29.

Table No. 29

Distribution of households, according to number of hens used for brooding eggs, no. of eggs set for hatching and no. of chicks produced.

Sr. Particulars No.	Number of hens used for brooding eggs					Overall	Previous survey 1978-79
	One	Two	Three	Four or more	Overall		
1.	2.	3.	4.	5.	6.	7.	8.
1. Percentage of households which have taken hatches	91.2	7.9	0.7	0.2	100.00	-	-
2. Average number of eggs set for hatching per hen,	13	13	12	13	13	12	12

Table No. 29 continued

1.	2.	3.	4.	5.	6.	7.	8.
3.	Average number of chicks produced by each hen.	10	11	9	9	10	9
4.	Hatching percentage	72.3	83.2	75.1	68.9	74.7	75.2

(Data on 90326 eggs set for hatching, from 6364 households were observed).

It was seen that, hens were used for brooding eggs in all the households, wherein hatchings were taken.

An average of 13 eggs were set for hatching per hen and the overall hatching percentage was 74.71 p.c.

4.3.2 Period of hatching and hatching percentage.

From the data collected about hatching of eggs, the month-wise details, regarding setting of eggs for hatching, are given in Table No. 30.

Table No. 30

Monthwise percentage distribution of number of eggs set for hatching and hatching percentage.

Sr. No.	Month	Percentage of households where in the eggs were hatched.	Percentage of eggs set for hatching.	Hatching percentage	Average number of hens used for breeding 100 eggs
1.	2.	3.	4.	5.	6.
1.	March	6.62	6.41	74.58	8
2.	April	3.73	3.38	73.92	8
3.	May	4.05	3.93	71.41	8
4.	June	6.12	5.55	72.86	8
Total for Summer season		20.52	19.27	73.31	8
5.	July	6.53	6.30	73.23	8
6.	August	8.18	8.26	70.52	8
7.	September	9.90	9.60	80.19	8
8.	October	16.55	17.17	73.32	8
Total for Rainy season		41.16	41.33	74.34	8

Table No. 30 continued

1.	2.	3.	4.	5.	6.
9.	November	14.70	14.65	73.03	8
10.	December	8.38	8.66	76.03	7
11.	January	8.16	8.22	78.94	8
12.	February	7.08	7.87	77.00	7
Total for Winter Season		38.32	39.40	75.73	8
Overall		100.00	100.00	74.69	8
Results of previous survey		-	-	75.21	8

The results revealed that, out of the total eggs hatched, maximum number of eggs, i.e. 17.2 p.c. eggs were set for hatching during the month of October. It was further observed that the percentage of hatching was the highest i.e. 80.2 p.c. in the month of September.

Minimum number of eggs, i.e. 3.4 p.c. were set for hatching during the month of April, whereas the lowest percentage of hatching (70.5 p.c.) was observed during the month of August.

4.4 Utilisation of eggs in poultry keeper households.

From the poultry keeper households observed, data regarding procurement and disposal of eggs, were also collected. The details are given Table No. 31 and 32. / in

From table number 31 it is observed that, the percentage of households producing eggs is maximum in summer season, i.e. 50.9 p.c. The percentage of households, which consumed eggs for table purpose and utilised for hatching is 24.69. Only 5.65 p.c. poultry keeper households sold eggs for hatching (0.14 p.c.) and for table purpose (i.e. 5.51 p.c.). Spoilage and breakage was observed in maximum number of households in rainy season (i.e. 0.22 p.c.) The overall average number of households in which breakage or spoilage took place, is observed to be 0.14 p.c.

From Table No. 32, it is seen that the overall procurement of eggs through production and purchase is 85.00 and 2.06 respectively, in 100 poultry keeper's households. Similarly the overall disposal of eggs through consumption at home and sale was 52.00 and 21.28 respectively. The average selling price of eggs was Rs. 0.38 per egg.

.. 30 ..
Table No. 31

Percentage of poultry keeper households, following different modes of procurement and disposal of eggs, on the previous day of visit.

Season	Procurement of eggs			Disposal of eggs				Breakage and spoilage	Balance
	Produced on the previous day.	Purchased for Hatching	Table purpose.	Utilisation at home for Hatching	Table purpose	Sold for Hatching	Table purpose		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
Summer (4967)	50.90	0.02	0.22	0.22	26.94	0.06	5.05	0.12	20.88
Rainy (4540)	46.54	0.07	1.32	0.75	23.52	0.24	4.74	0.22	27.18
Winter (5678)	45.28	0.02	1.88	0.49	22.37	0.12	6.52	0.11	26.22
Overall (15185)	47.49	0.03	1.17	0.48	24.21	0.14	5.51	0.14	24.76
Previous survey 78-79 (13439)	49.34	0.34	1.27	0.59	27.76	0.97	7.62	0.14	24.12

(Figures in brackets indicate total number of poultry keeper households observed.)

.. 30 ..
Table No. 32

Average number of eggs procured and disposed through different modes (on the previous day of visit)

Season	Average number of eggs per 100 poultry keeper households									
	Procurement of eggs through				Disposal of eggs through				Breakage and spoilage.	
	Production	Purchased		Utilisation at home		Sold for		Rate per egg (Rs.)		
		For Hatching	For Table purposes	For Hatching	For Table Purpose	Hatching	Table Purpose			
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	
Summer (5313)	82.00	0.04	0.40	3.00	46.00	0.08	19.00	0.31	0.12	
Rainy (7019)	90.00	0.11	2.00	8.00	51.00	0.42	18.00	0.40	0.20	
Winter (7945)	84.00	0.05	3.00	6.00	43.00	0.35	23.00	0.43	0.21	
Overall (20277)	85.00	0.06	2.00	6.00	46.00	0.28	21.00	0.38	0.15	
Previous survey 1978-79 (17829)	98.81	1.70	2.22	6.77	46.95	1.72	16.53	0.40	0.22	

(Figures in brackets indicate total number of eggs procured and disposal there of)

4.4.1 Procurement and disposal of eggs in non-poultry keeper households -

The data regarding procurement and disposal of eggs in non-poultry keeper households on previous day of visit, were collected from a cluster of two non-poultry keeper households, daily, to know the utilisation of eggs in these households. The details regarding data collected on procurement and disposal of eggs, are presented in Table No. 33, 34 and 35.

Table No. 33

Seasonwise distribution of non poultry keeper households according to eggs utilisation.

Sr. No.	Season	Percentage of households having		
		Purchase of eggs.	Home consumption of eggs.	Eggs in Balance.
1.	2.	3.	4.	5.
1.	Summer (2457)	13	13	Neg
2.	Rainy (1824)	13	13	Neg
3.	Winter (1796)	17	17	Neg
Overall (6077)		14	14	Neg

Table No.34

Sr. No.	Season	Average number of eggs utilised per 100 non-poultry keeper households.			
		Purchased	Rate of purchase-se. per egg (RS.)	Consumed at home	Eggs in balance
1.	2.	3.	4.	5.	6.
1.	Summer (2457)	38	0.40	37	1
2.	Rainy (1824)	36	0.42	36	Neg
3.	Winter (1796)	45	0.48	44	1
Overall (6077)		40	0.43	39	1

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Table No. 35

Sr. No.	Season	<u>Percentage of eggs purchased/disposed in non poultry keeper households.</u>		
		<u>Procurement</u>	<u>Disposal</u>	
		<u>Purchased</u>	<u>Consumed at home</u>	<u>Eggs in balance</u>
1.	2.	3.	4.	5.
1.	Summer (2457)	100	96.5	3.5
2.	Rainy (1824)	100	99.8	0.2
3.	Winter (1776)	100	98.8	1.2
	Overall (6077)	100	98.2	1.8

(Figures in brackets indicate number of observations).

From the Table No. 33, it will be seen that maximum number of non-poultry keeper households purchased eggs (17 p.c.) in Winter Season. The home consumption of eggs, which was mostly for the table purpose, was observed in maximum number of households (17, p.c.), also in Winter Season. The overall pattern observed was that 14 p.c. households purchased eggs and the same consumed the eggs at home.

It is observed from Table No. 34 that, the overall average number of eggs procured and disposed per 100 non-poultry keeper households, was 40 eggs purchased and 39 eggs consumed at home.

From Table No. 35 the distribution of eggs as purchased, consumed, etc. observed to be varying from season to season. The overall pattern indicated that 98.2 p.c. of the total eggs (available in the households through previous balance and purchase) were consumed at home by the householder themselves and 1.8 p.c. eggs were kept in balance.

4.5 Feeding Practices :-

It is common practice in villages, to feed the birds with grains and cereals, twice in a day, once in the morning and once in the evening. The data on feeding were mainly collected for deshi birds only, very few households in the villages used readymade poultry feed. The table no. 36 depicts the different types of grains fed, either alone or with combination, in addition to what they might have consumed, from the surrounding area.

Table No. 36

Household feeding different type of feed to poultry birds and quantity fed (gm)

Sr. No.	Name of feed	Percentage of households feeding the feed.	Percentage of birds fed with feed.	Average quantity fed per bird (gm)
1.	2.	3.	4.	5.
1.	Jowar	51.77	55.07	18
2.	Rice	18.37	14.52	14
3.	Bajra	10.29	10.98	24
4.	Jowar Bajra (together)	4.58	4.61	17
5.	Cereals together	12.92	13.17	17
6.	Nachani	1.41	1.14	13
7.	Wheat	0.11	0.07	10
8.	Maize	0.29	0.28	11
9.	Mash	0.01	0.02	87
10.	Other	0.25	0.14	6
	Overall	100.00	100.00	17
	Figures of last survey 1978-79.	-	-	18

From this table, it is observed that the major constituents of the feed, was Jowar, either alone or with combination, followed by Rice and Bajra. The overall average quantity of feed fed, per deshi bird per day, was 17 gms.

The details about percentage distribution of households according to size of poultry and quantity of total feed supplied, are given in Table No. 37.

Table No.37

Percentage distribution of households according to size of poultry and quantity of total feed supplied daily to all the birds fed together.

Total poultry strength	Upto 25	26 to 50	51 to 75	76 to 100	101 to 150	151 to 200	201 to 250	251 to 300	301 to 400	Above 400	Total	Average quantity of feed given/bird in gm.
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1	3.5	3.5	.3	.6	.3	.1	-	-	-	-	8.3	34
2	1.1	6.4	1.8	2.1	.4	.5	.1	.3	-	-	12.7	31
3	.5	3.5	1.3	2.2	.4	.3	.1	.1	.3	-	8.7	26
4	.2	2.1	.7	2.3	1.0	.4	.3	.2	.1	.1	7.2	24
5	.1	1.8	.7	2.3	1.3	.4	.3	.1	.2	.2	7.4	21
6	.2	1.3	.5	2.1	1.2	.7	.3	.1	.2	.2	6.8	19
7	.1	.8	.5	1.8	1.2	.6	.5	.1	.2	.2	6.0	18
8	.1	.5	.3	1.7	1.2	.8	.3	.1	.2	.3	5.5	18
9	.1	.6	.2	1.3	1.1	.6	.5	.2	.1	.2	4.9	15
10	-	.4	.2	1.4	1.0	.8	.5	.2	.1	.3	4.5	15
11-15	.2	.6	.4	2.7	3.0	3.3	1.5	.9	.8	.9	14.3	13
16-20	-	.2	.1	.5	1.0	2.0	1.4	.8	.4	.8	7.2	12
21-30	-	.1	.1	.2	.4	.9	.6	.8	.5	1.0	4.6	10
31-40	-	-	-	-	.1	.1	.1	.2	.1	.4	1.0	9
Above 40	-	-	-	-	-	.1	-	.1	-	.3	.5	8
Total	6.1	21.8	7.1	21.0	13.6	11.6	6.5	4.2	3.2	4.9	100.0	17

...../-

4.6 mortality in poultry birds -

Enquiry was made with the poultry-keeper households, regarding deaths of birds occurred in the households, due to various causes, during the last month of the visit. The details regarding the same are presented below in table No. 38,39 and 40.

In Table No. 38 the mortality percentage in each category to of poultry birds/respective category of birds observed is given whereas table 39 gives details regarding percentage distribution of mortality in different categories of birds to total poultry birds observed. In table No. 40 details regarding percentage distribution of mortality according to various causes and different categories of birds is presented.

Table No. 38

Percentage mortality in various categories/birds / of

Parti- -culars	Percentage of mortality in					
	Cocks	Hens	Cockerels	Pullets	Chicks	Overall
1.	2.	3.	4.	5.	6.	7.
Annual mortality	7.5	10.0	14.8	11.4	29.1	18.7
Previous survey 1978-79	5.5	11.6	10.4	5.4	29.7	19.8

The overall mortality was the highest i.e. 29.1 p.c. in Chicks and the lowest (7.5 p.c.) in Cocks. It was 11.4 p.c. in pullets, 14.8 p.c. in Cockerels and 10 p.c. in Hens, giving overall average mortality as 19 p.c.

Table No. 39

Categorywise percentage distribution of mortality in different seasons.

Sr. No.	Season	Percentage of birds died to the total poultry stock observed during season.	Percentage distribution of birds died					
			Cocks	Hens	Cock- -ere- -ls	Pull- -ets	Chi- -cks	Tot- -al
1.	2.	3.	4.	5.	6.	7.	8.	9.
1.	Summer	5.25	1	5	11	10	73	100
2.	Rainy	6.53	3	11	16	14	56	100
3.	Winter	4.94	2	5	7	9	77	100
Average per season.		5.45	2	7	11	11	69	100

The mortality in rainy season was maximum (6.53 p.c.) and it was minimum in winter season (4.94 p.c.)

It was observed that amongst the percentage of birds died the number of of chicks was maximum, varying between 56 to 77 p.c. of the total number of birds died in different seasons, followed by the number of cockerels and pullets between 5 to 16 p.c. The mortality in cocks and hens was observed to be very low which was between 1 to 3 and 5 to 11 p.c. respectively.

The overall distribution of death included 69 p.c. chicks, 7 p.c. hens, 11 p.c. pullets and cockerels each and only 2 p.c. cocks.

4.6 Mortality in Poultry due to various reasons

The details regarding deaths of birds occurred in the house-holds due to various causes, during the last month of the visit are given in Table No. 40 and 41.

Table No.40

Percentage distribution of deaths according to various causes of deaths.

Sr. No.	Category of birds.	Percentage of deaths due to							
		Diseases	Physical / Mechanical forces	Attack of animals	Attack of wild birds	Other reasons	Total	Annual mortality	Mortality in survey 1978-79.
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1.	Cocks (5555)	1.2	0.2	0.4	-	0.1	-	7.5	5.5
2.	Hens (40702)	4.7	0.5	1.6	-	0.3	-	10.0	11.6
3.	Cockerels (4044)	2.4	1.2	6.0	0.1	1.3	-	14.8	10.4
4.	Pullets (6825)	3.1	1.2	4.8	-	1.6	-	11.4	5.4
5.	Chicks (47615)	18.1	7.7	18.1	14.5	10.9	-	26.0	29.7
Total (104746)		29.5	10.8	30.9	14.6	14.2	100.0	18.7	19.8
Figures of previous survey 1978-79 (94,540)		33.9	11.1	37.7	9.6	7.7	100.0	19.8	-

(Note:- Figures in brackets indicate no.of birds observed).

It was observed that maximum deaths occurred due to attack of animals i.e. 30.9 p.c. followed by diseases, i.e. 29.5 p.c. The deaths due to physical or mechanical forces, such as excess of heat or cold, etc. and due to attack of birds, for prey were 10.8 p.c. and 14.6 p.c. respectively. The remaining 14.2 p.c. deaths were due to other reasons. The annual mortality observed in poultry birds was 18.7 p.c.

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Table No. 41

Percentage distribution of birds died due to different diseases.

Sr. No.	Category of birds	Percentage of deaths due to					Total	Figures of previous survey
		Ranikhet	Fowl pox	Diarrhoea	Bowl	Other diseases		
1.	2.	3.	4.	5.	6.	7.	8.	9.
1	Cocks	-	-	0.1	0.5	3.6	4.2	1.3
2	Hens	4.7	-	0.9	0.8	9.5	15.9	35.1
3	Cockerels	0.7	-	-	0.4	7.2	8.3	4.9
4	Pullets	1.6	-	-	0.6	8.3	10.5	3.5
5	Chicks	0.7	-	0.7	0.2	58.8	61.1	55.2
	Total	7.7	0.7	1.7	2.5	87.4	100.0	100.0
	Figures of previous survey 1978-79	11.0	7.8	13.1	0.1	68.0	100.0	

Account the birds which died due to disease, 7.7 p.c. died due to Ranikhet, 0.7 p.c. due to Fowl pox, 1.7 p.c. due to Diarrhoea, 2.5 p.c. due to Bowl and the remaining 87.4 p.c. died due to other diseases.

CHAPTER -V

Wool Production and Sheep Rearing Practices.

5.1 Sample Size Observed :- For studying wool production and sheep rearing practices, all the households rearing sheep in the selected villages, were observed. The details of sheep observed in these households are given in Table No.42.

Table No. 42
Details of sheep observed.

Sr. No.	Season	No. of flocks	No. of sheep observed			Total	
			Rams	Ewes	Lambs		
					Male	Female	
1.	2.	3.	4.	5.	6.	7.	8.
1.	Summer	142	120	3121	590	805	4636
2.	Rainy	214	459	5953	597	802	7811
3.	Winter	195	346	4755	734	947	6782
Total		551	925	13829	1921	2554	19229
Previous survey (1978-79)		328	444	8789	830	946	11009

A total of 551 flocks were observed in the selected villages which consisted of an average of 2 rams, 25 ewes and 8 lambs, per flock.

5.2 Number of sheep in stationary and migratory flocks

Out of the total of 19229 sheep observed, 16,344 were from stationary flocks and the remaining 2885 sheep were from migratory ones. (table No. 43).

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Table No. 43

Number of sheep in stationary and migratory flocks

Type of flocks	Number of flocks	Number of sheep reared						Previ- ous -age 1978-79	Previ- ous survey 1978-79
		Rams	Ewes	Lambs		Total	Peren		
				Male	Female				
1.	2.	3.	4.	5.	6.	7.	8.	9.	
Stationary	490	849	11915	1633	1947	16,344	85.0	76.8	
Migratory	61	76	1914	288	607	2,855	15.0	23.2	
Total	551	925	13829	1921	2554	19,229	100.0	100.0	

It was observed that 85 p.c. of the total sheep were from stationary type of flocks and 15 p.c. were from migratory type of flocks.

5.3 Estimated number of sheep in the State.

Estimated number of sheep :- Out of the total sheep estimated, there were 1,54,518 (6.5 p.c.) rams, 17,49,563 (72.p.c.) ewes and 5,23,278 (21.5 p.c.) lambs. The total estimated number of sheep was 24.30 lakhs as compared with 22.65 lakhs estimated in 1978-79 survey. As per 1978 census, the same was 26.14 lakhs.

5.4 Estimated wool production in the State

The details about of sheep shorn per clip, average wool yield per sheep per clip and total wool production in the State, are presented in table no. 44.

Table No. 44

Estimated number of sheep shorn, average wool production per sheep, and total wool production / shorn in the State.

Season	Estimated number of sheep shorn (in lakhs)				
	Rams	Ewes	Lambs	Total	
	1.	2.	3.	4.	5.
Summer	1.57 (96.0)	15.40 (97.5)	4.65 (70.8)	21.62 (90.1)	
Winter	1.47 (96.7)	18.85 (98.2)	1.51 (33.6)	21.63 (87.9)	
Overall	1.52 (96.3)	17.13 (97.9)	2.98 (56.9)	21.63 (89.0)	
Previous survey 1978-79)	1.27 (95.7)	15.59 (98.3)	3.35 (59.1)	20.02 (88.4)	

Table no. 44 continued

Season	Average wool yield per sheep shorn (in kg)				Total wool production (in tonnes)			
	Rams	Ewes	Lambs	Over-all	Rams	Ewes	Lambs	Total
1.	6.	7.	8.	9.	10.	11.	12.	13.
Summer	0.327	0.285	0.225	0.275	51.3	439.0	104.6	594.9
Winter	0.290	0.249	0.141	0.245	42.6	469.4	18.5	530.5
Total for the year	0.617	0.534	0.366	0.520	93.9	908.4	123.1	1125.4
Previous survey 1978-79	0.671	0.551	0.334	0.523	85.1	848.1	114.1	1047.3

(Note :- Figure in brackets indicate percentage of sheep shorn).

A average wool yield produced worked out to be 617 gm. per ram, 534 gm. per ewe and it was 336 gm. per lamb. The total estimated wool production in the State worked out to be 1125.4 tonnes for the year 1979-80.

5.5 Disposal of wool :-

It is a general practice to sell the wool produced on cash payment to the merchants, who either collect the wool on the spot or at the local market. Nearly 77.3 p.c. of the wool produced was sold against cash payment, 1.5 p.c. was sold against repayment of loans 9.2 p.c. was utilised at home for preparation of products and 11.2 p.c. was kept in balance. The details are given in table no. 45.

Table No. 45

Disposal of Wool (in percentage)

Particulars	Cash pay-ment	Repay-ment of loan	Repay-ment of adv-ance	Used at home	Given as gift	Balance	Total
1.	2.	3.	4.	5.	6.	7.	8.
Percentage	77.27	1.47	0.34	9.18	0.58	11.16	100.00

Goat milk production and goat rearing practices.

6.1 Sample size observed :- For working out the estimates of goat milk production and studying the goat rearing practices, data on goats were collected daily, from three households, in all the selected villages. The number of goat rearing households observed and number of goats observed therein are given in Table No. 46.

Table No. 46

Sample size observed for goats

Sr No.	Season	No. of house-holds having goats.	Total number of goats observed				Total
			Bucks	Does	Males kids	Female kids	
1.	2.	3.	4.	5.	6.	7.	8.
1	Summer	3012	436	7870	1904	2901	13111
2	Rainy	2873	532	8153	1813	2669	13163
3	Winter	3452	415	9786	2592	3695	16488
Total		9337	1383	25809	6309	9265	42766
Previous survey (1978-79)		8526	1087	20846	5501	7405	34839

Data about the milk production and its utilisation, breeding, feeding, and other managerial practices followed by the goat owners, were collected for 42,766 goats from, 9337 households. On an average there were 458 goats per 100 households, consisting of 15 bucks, 276 does, 68 male kids and 99 female kids.

6.2 Estimated number of goats in milk and goat milk production in the State.

The details of estimated number of goats (milch and in milk) and goat milk production in Maharashtra State are given in table No. 47.

Table No. 47

Estimated number of milch and in milk goats and goat milk production.

Sr. No.	Season	Estimated number of		Percentage of goats in milk to the total milch goats	Average milk yield per day per goat in milk (kg.)	Total milk production for the season. (000' M.T.)
		Milch goats (in lakhs)	In milk goats (in lakhs)			
1.	2.	3.	4.	5.	6.	7.
1	Summer	44.98	22.36	49.71	0.181	49.48
2	Rainy	47.06	18.12	38.50	0.189	42.17
3	Winter	41.72	18.56	44.49	0.170	38.07
Overall		44.59	19.68	44.14	0.180	129.72
Previous survey 1978-79		42.25	19.23	45.51	0.180	126.49

The daily average milk yield per goat in-milk for the year was estimated at 0.180 kg. It was observed to be the highest, viz. 0.189 kg. per goat in milk in rainy season and lowest viz. 0.170 kg. in winter. The total estimated number of milch goats in the State were 44.59 lakhs. The number of milch goats as per livestock census-1978 (December 1978) was 43.49 lakhs. Thus the estimated figure closely tally with the census figure. The percentage of goats in-milk was 44.14.

The estimated milk production from goats was 129.72 thousand metric tons during the year.

CHAPTER VII

7.1 Estimated meat production in the State : On the basis of data collected from slaughter houses in the Districts, average meat produced per animal for different species, was worked out. While estimating the number of animals slaughtered, the figures from Annual Administration Report 1979-80, were taken into consideration, in addition the estimates of those slaughtered in households and unrecognised slaughter houses. The details are given in table No. 48.

Table No. 48

Estimated number of animals slaughtered, average meat production and total meat production in the State during 1979-80.

Sr. No.	Species	Average meat production per animal (in kg.)	Estimated no. of animals slaughtered (in lakhs)	Total meat production (000 M.T.)	Previous survey 1978-79
1.	2.	3.	4.	5.	6.
1.	Cattle	101.391	3.38	34.27	25.37
2.	Buffalo	121.081	2.59	31.36	19.56
3.	Sheep	9.790	21.88	21.42	19.47
4.	Goats	9.199	38.19	35.13	41.89
Total		-	-	122.18	106.23

From the above table, it is seen that average meat produced per sheep is slightly higher than that of goat. Also, out of the total meat production, 28 p.c. accounted from cattle, 26 p.c. from buffalo, 17 p.c. from sheep and remaining 29 p.c. from goats.

7.2 Disposal of by-products of animals :- The data on price of by products, such as heads, hoofs, etc. were collected, along-with the data regarding production of meat. The details about the average price realised per piece are given in table No. 49.

Table No. 49

Average price of head, hoof and other parts of the animals.

Sr. No.	Cátego-ry	Average price per piece (in Rs.)							
		Head	Hoof	Brain	Lung	Liver	Blood	Intes-tines	Total
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1.	Cattle	8.47	5.57	1.86	1.77	11.76	N.A.	3.72	33.15
2.	Buffalo	8.08	3.82	2.00	2.25	2.25	N.A.	4.84	23.24
3.	Sheep	5.06	2.13	1.40	1.84	5.09	0.96	2.46	18.94
4.	Goats	7.08	2.47	1.78	2.65	8.67	1.10	3.18	26.93

It is seen from the above table that, a butcher on an average gets Rs. 33.15 per cattle, Rs. 23.24 per buffalo, Rs. 18.94 per sheep and Rs. 26.93 per goat through the sale of different parts of the animals, in addition to the amount realised by sale of beef/mutton, and skin and other remaining portion.

CHAPTER -VIII

SUMMARY

8.1 The Integrated Survey Scheme was implemented by the Department of Animal Husbandry, Maharashtra State, for estimation of annual production of the four important livestock products, viz. milk, egg, wool and meat and for study of livestock and poultry keeping practices followed, in the State. The present report discusses the results of detailed statistical analysis of the data collected during this survey conducted in 1979-80.

8.2 Sampling design :-

The sampling design adopted for the survey was a multi-stage stratified random sampling. The Greater Bombay district was excluded from the scope of the survey and five villages each from remaining 25 districts, were selected in every season. One enumerator was entrusted the survey work of five villages from each of the 25 districts.

8.3 Results :-

1) The data were collected from 6612 bovine keeper households and a total of 39889 bovines were observed for bovine keeping practices and 8500 animals were observed for milk recording. For collecting data on egg production, 15,185 households having poultry were observed.

2) The average number of households per village was 176.

3) About 27 percent of the total households observed, had no livestock or poultry, 58 percent households had bovine, while 25 percent households had goat, 31 p.c. households had poultry and only 1 percent households had sheep.

4) On an average, each bovine keeper household was observed to have about 5 cattle and one buffalo i.e. six bovines approximately.

5) During the year under report, the estimated number of cows in milk was 17.48 lakhs and that of buffaloes was 10.07 lakhs. The percentage of animals in-milk was 43 p.c. in cows and 61 p.c. in buffaloes.

6) The estimated average daily milk yield per cow in-milk was 929 grams and per milch cow was 396 grams. The same figures for buffalo were 2126 grams per buffalo in-milk and 1231 grams, per milch buffalo.

7) The annual estimated milk production in the State was 1505.62 thousand metric tons.

8) The estimated average milk production per bovine keeper household was 1118 grams (consisting of 569 grams of cow milk + 549 grams of buffalo milk). Of this, 53 p.c. of cow milk and 29 p.c. of buffalo milk was consumed as fluid milk. 42 p.c. of cow milk and 62 p.c. of buffalo milk was sold as fluid milk and 2 p.c. of cow milk and 5 p.c. of buffalo milk was converted into milk products.

9) About 16 p.c. of cattle and 11 p.c. of buffaloes were maintained, on grazing only.

10) Amongst the animals which received some kind of feeding at home, the average quantity of feed/fodder fed per animal was observed to be 6.939 kg. dry fodder, 7.832 kg. green fodder and 1.363 kg. concentrates, in cattle class and 7.879 kg. dry fodder, 9.178 kg. green fodder and 1.937 kg. concentrates, in respect of buffalo class.

11) The annual mortality rate observed was 1.5 p.c. in cattle and 3.4 p.c. in buffaloes.

12) The average quantity of dung dropped in cattle shed was observed to be 3.309 kg. per bovine, per day

13) About 6 p.c. of the households per village were having only poultry, and no other livestock.

14) Majority of the households (72 p.c.) reared layers upto 3 and total poultry upto 7.

15) The average number of layers reared per poultry keeper households, was found to be 4 and the average number of total poultry birds reared was found as 8.

16) The average number of different categories of poultry birds reared per 100 poultry keeper households, was observed as 57 (5 p.c.) Cocks, 268 (39 p.c.) Hens, 27 (4 p.c.) Cockerels, 90 (13 p.c.) Pullets and 268 (39 p.c.) Chicks, giving the total birds as 690.

17) During the year under report the estimated number of deshi and improved layers was 58.99 lakhs and 15.81 lakhs, respectively, with laying percentage as 31.84 p.c. and 58.74 p.c.

18) The per day estimated egg production was 18.73 lakhs from deshi poultry and it was 9.29 lakhs from improved poultry.

19) The estimated annual egg production was 68.55 crores from deshi layers and 34.01 crores from improved layers, giving an annual production of 102.56 crores.

20) The contribution of eggs from improved layers in total annual eggs production was 33 p.c.

21) The average number of eggs produced per bird during the year was 116 for deshi layers and 215 for improved layers.

22) The overall average number of eggs set for hatching under a hen was 13 and the hatching percentage was 74.7.

23) Maximum number of eggs set for hatching were 17.17 percent in the month of October and the maximum hatching percentage (80.2) was observed in the month of September.

24) On the previous day of visit, eggs were produced in 47 p.c. of the households, and in 24 p.c. households, eggs were consumed for table purpose. In 6 p.c. of the households, the eggs were sold for table purpose.

25) On an average, 100 households rearing poultry, produced 85 eggs and purchased 2 eggs, per day.

26) As regards disposal of the eggs, the poultry rearing households used/sold 6 p.c. eggs for hatching and 67 p.c. eggs for table. The breakage and spoilage was about 0.2 p.c.

27) The rate of sale of eggs was 38 paise/egg.

28) Almost all the birds were observed to be supplemented by residual grains, in addition to what they consumed from the surroundings. The daily average quantity of grains fed per bird was 17 grams.

29) The overall mortality in poultry birds was about 18.7p.c. The mortality was maximum in chicks i.e. 29 p.c. out of total chicks observed.

30) Out of the birds died, highest i.e. 46 p.c. died due to attack of animals/birds of prey followed by 30 p.c. due to disease

31) The data on sheep rearing practices were collected from 551 flocks. In all, 19,229 sheep were observed for detail study.

32) The overall flock size consisted of 2 rams 25 ewes and 8 lambs.

33) The average wool yield per sheep was 520 grams for the year. The estimated annual wool production for the state was 1125.4 Metric Tons.

34) The total number of goats observed for goat rearing practices were 42766 from 9337 households.

35) On an average, there were 458 goats per 100 households consisting of 15 bucks, 276 does and 167 kids.

36) The percentage of goats in-milk was 44.14 .The estimated number of in-milk goats was 19.68 lakhs.

37) The average daily milk yield per goat in-milk was 180 grams. The estimated annual goat milk production was 129.7 thousand Metric Tons.

38) The average meat production per animal was estimated as 101.391 kg. for cattle, 121.081 kg. for buffalo, 9.790 kg. for sheep and 9.199 kg. for goat.

39) A total of 3.38 lakhs cattle, 2.59 lakhs buffaloes, 21.88 lakhs sheep and 38.19 lakhs goats were estimated as slaughtered in the State during the year.

40) The estimated annual meat production for the State was 122.18 thousand Metric Tons.