

## CHAPTER - VI

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**LIVESTOCK DISTRIBUTION AND FODDER SUPPLY**

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**A. CLASSIFICATION OF LIVESTOCKS**

Cattle

Buffaloes

Sheep

Goats

**B. LIVESTOCK COMBINATION****C. FODDER RESOURCES AND AVAILABILITY**

CONCLUSION

REFERENCES

Livestocks are the part and parcel of our farming society. All the agricultural operations are dependent on them and they are the keystone in our farming as they are the chief source of power and manure (Kaystha, 1961). They are not merely useful but as a companion, they live side by side or even under one roof with the farmers. Therefore, an attempt is made to analyse the fodder availability and livestock distributional pattern and changes therein in this chapter.

#### A. CLASSIFICATION OF LIVESTOCKS :

The data of the livestock of Solapur district is derived from the quinquennial livestock and agricultural census which is arranged for every five years.

The present classification of livestock is more simplified and grouped into four broad categories as bovines (cattle and buffaloes), ovines (sheep and goats), other animals and poultry (Singh, 1975).

#### Cattle :

In the total livestock of the region cattle ranks second i.e. next to goats and their proportion is 33.22 percent. Their connection with rural economy is large because bullocks provide an essential draught power for agricultural operations and the cows as a source of milk for the rural community. They have shared about 41.31 percent of livestock

in Karmala and Barshi taluka. In North Solapur, South Solapur and Akkalkot talukas it's strength ranges from 35 to 40 percent. Elsewhere it ranges between 30 to 35 percent (Fig.6.1A).

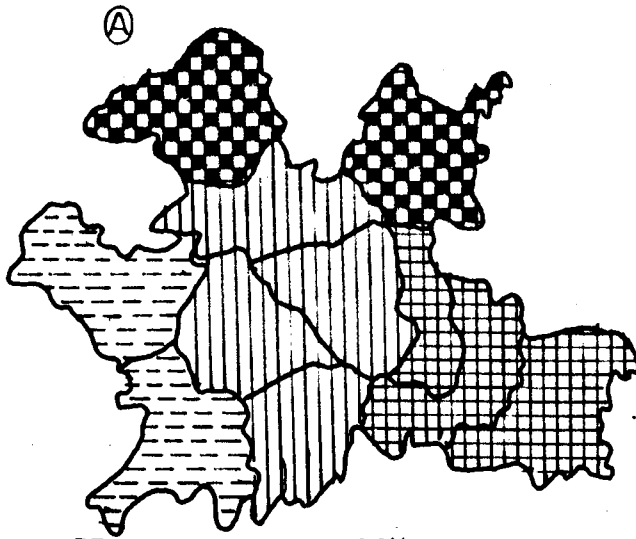
The percentage of cattle has decreased by 15.43 percent throughout the region. Above 19 percent decrease is recorded in Barshi taluka, between 17 to 19 percent in Karmala, Madha and Akkalkot taluka, 15 to 17 percent in South Solapur, Mohol, Mangalwedha and Pandharpur talukas and rest of the talukas under 15 percent (Fig.6.1B).

#### Buffaloes :

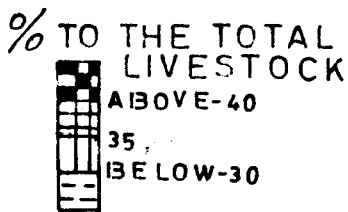
In the total livestocks in the region buffaloes ranked third. Their distribution is related with the rainfall distribution. High concentration is in high to moderate rainfall and low in areas of low rainfall. She buffalo is the chief source of milk of the region. Spatial distribution shows the disparities ranging from above 15 percent in Barshi, Akkalkot, South Solapur and North Solapur to 9 to 15 percent in Mohol, Madha & Pandharpur and below 9 percent in the remaining talukas of the region (Fig.6.1C).

It is interesting to note that the buffaloes proportion has increased throughout the region during the period under investigation (1951 to 1978). The proportion has increased by above 3 percent in North Solapur, Barshi, Mohol and Pandharpur, while in Karmala, Sangola, Mangalwedha and Madha it is below 2 percent and elsewhere 2 to 3 percent increase is noted (Fig.6.1D).

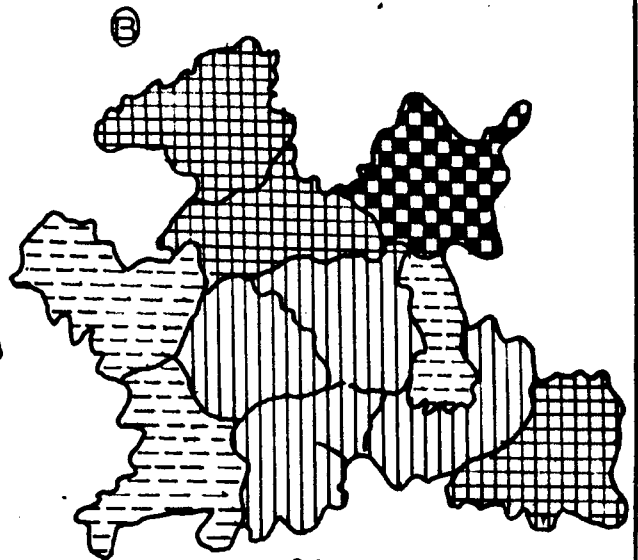
### CATTLES 1976 TO 1978



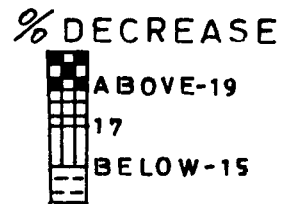
REGION AVERAGE=33.22%



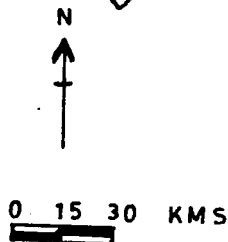
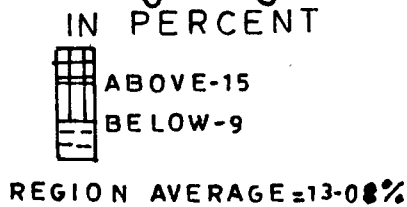
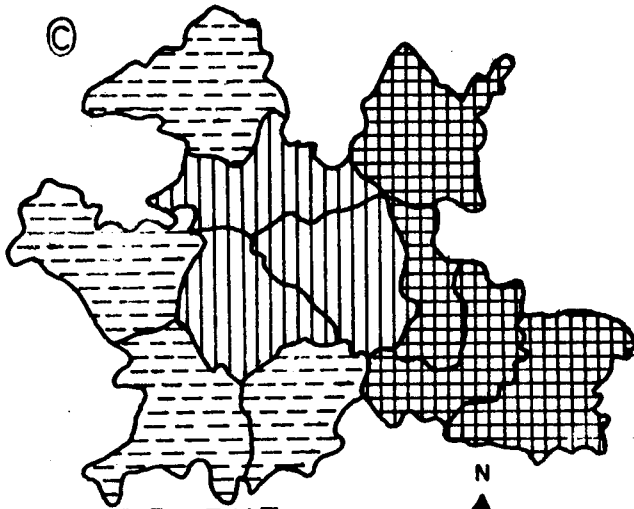
### VOLUME OF CHANGE IN CATTLES 1951-53 TO 1976-78



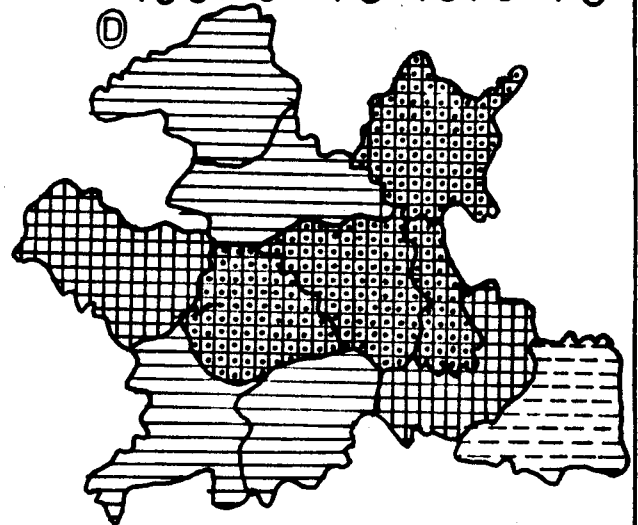
REGION AVERAGE=15.43%



### BUFFALOES 1976-78



### VOLUME OF CHANGE IN BUFFALOES 1951-53 TO 1976-78



REGION AVERAGE=2.40%

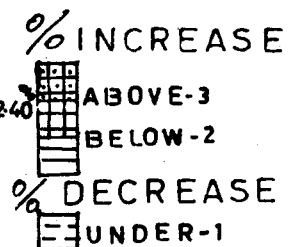


FIG. 6.1

Sheep :

In the total livestock sheep have shared nearly about 15.6% in the region, but regional disparities are more significant as shown in Fig.6.2A. The very high proportion is recorded in Sangola, Mangalwedha and Malshiras talukas followed by Karmala, Madha, Mohol and Pandharpur where it ranges between 5 to 10 percent. It is moderate i.e. below 5 percent in eastern part of the district (Akkalkot, South Solapur, North Solapur and Barshi talukas).

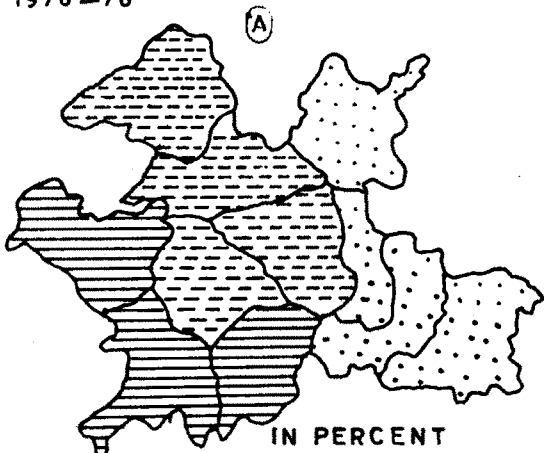
Changes have occurred in proportion of sheep during 1951 and 1978 and regional distribution shows both as positive and negative changes (Fig.6.2B). In Barshi and Madha the proportion has decreased by below 1 percent whereas in North Solapur, Malshiras, Pandharpur, Akkalkot and South Solapur it is decreased by 1 to over 4 percent. Elsewhere positive changes are dominant. In Karmala and Mohol proportions increased by above 2 percent and only in Mangalwedha and Sangola talukas it is 1 to 2 percent.

Goats :

In this region, goats are large in number and their proportion is the highest in the total livestock. Goats are more active and endure long dry season and withstand the humidity much better than sheep. Therefore, they are widely raised in the region under study. Goats are buffaloes of the poor particularly,

# SHEEP

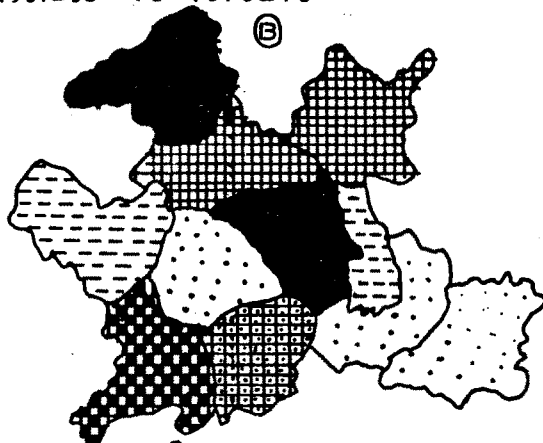
1976-78



REGION AVERAGE 15.06%

# VOLUME OF CHANGE IN SHEEP

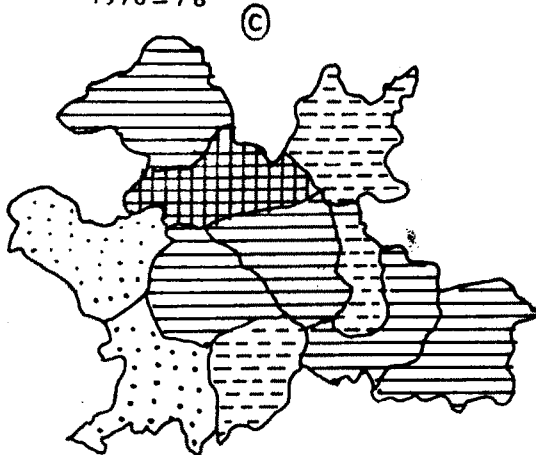
1951-53 TO 1976-78



REGION AVERAGE 1.27%

# GOATS

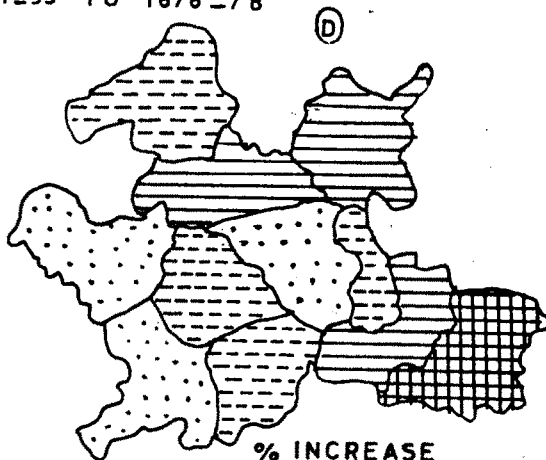
1976-78



REGION AVERAGE 38.36%

# VOLUME OF CHANGE IN GOATS

1951-53 TO 1976-78



REGION AVERAGE 14.03%

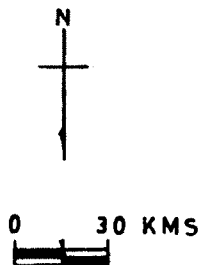


FIG 6.2

small farmers, agricultural labourers, and landless people as it is the chief source of milk to them. However, they provide valuable lambs. They are reared along the sheep or other animals. Goats have contributed 38.36 percent of the total livestock of the region.

Spatial distribution of goats is shown in Fig.6.2C, which is much uniform than cattle distributional pattern and ranges between above 45 to below 35%. They are more (above 40 percent) concentrated in Madha, Karmala, Mohol, Pandharpur, South Solapur and Akkalkot talukas. Their proportion ranges between 35 to 40% in North Solapur and Barshi taluka. In the western part i.e. Malshiras and Sangola talukas the proportion is low i.e. below 35 percent.

Changes have occurred in goats population in the region under investigation (Fig.6.2D). Positive changes are found in the study region, ranging from under 12 to above 20 percent. Highest increase of goats is in Akkalkot (above 20 percent), medium (16 to 20 percent) in Barshi, Madha and South Solapur talukas and 12 to 16 percent in Karmala, Pandharpur and Mangalwedha, elsewhere it is below 12 percent. In the region as a whole the goats proportion has increased by 14.03 percent

#### B. LIVESTOCK COMBINATION :

To assess the local significance and association of livestock a study of the livestock combination is attempted here. It shows that different livestock are raised in

combination in the various enumeration units. It is investigated by using the method of least deviation from the theoretical base, introduced by Weaver (1954). However in this combination young stock of cattle and buffaloes and poultry are not involved as they are not of any use for agriculture. Therefore, cattle, buffaloes, sheep and goats are considered and their combination is shown in Fig.6.3 A & B. It shows that these livestock combinations are resultant of physical, socio-economic environments and changes in technological development of the region.

COMBINATIONS :

By the application of Weaver's method five categories of livestock combinations is observed in 1951 and six combinations in 1978, and the same is represented on the map (Fig.6.3 A & B).

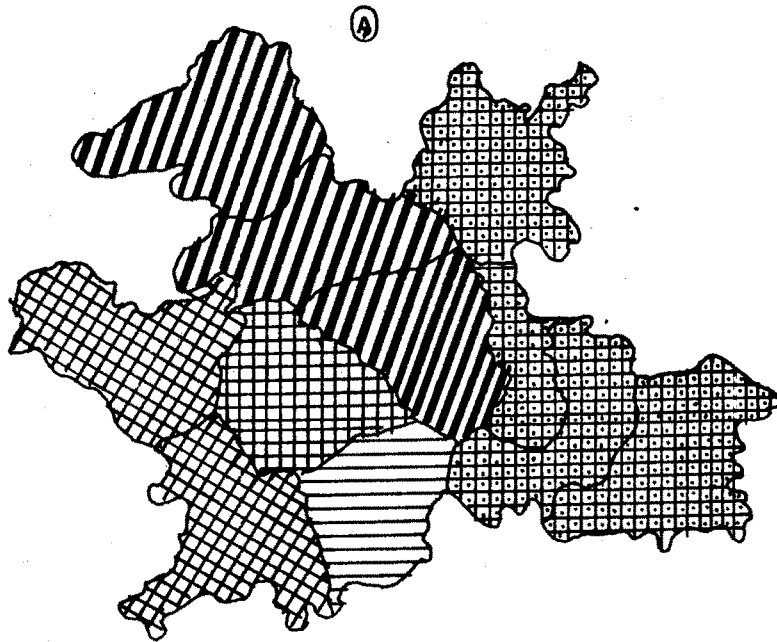
- i) Cattle and goats combination is confined to three talukas i.e. Karmala, Madha, Mohol in 1951.
- ii) Cattle, goats and buffaloes association has occurred in eastern part of the district i.e. Barshi, North Solapur, South Solapur and Akkalkot during 1951-53 (Fig.6.3A).
- iii) Sheep, cattle, goats combination is in Malshiras and Sangola. Only Pandharpur taluka there is a cattle, goat, sheep combination. Whereas cattle, sheep and goat combination is in Mangalwedha taluka.



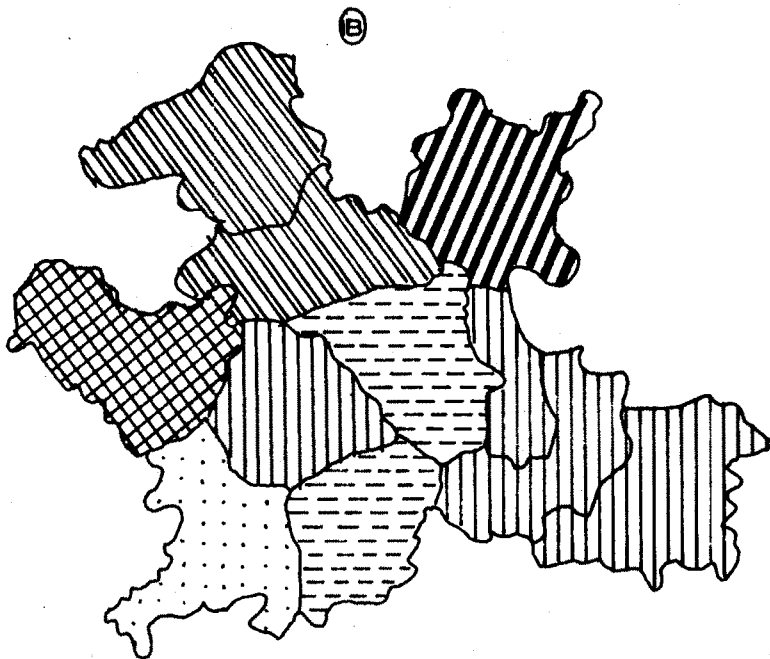
# LIVESTOCK COMBINATIONS (AFTER WEAVER)

1951-53

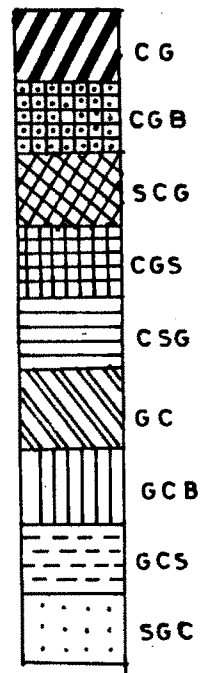
160



1976-78



## COMBINATIONS



## ABBREVIATIONS

- B BUFFALOE
- C CATTLE
- G GOATS
- S SHEEP

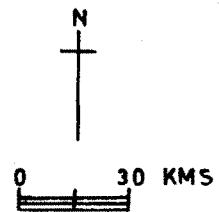


FIG 6-3

Many changes have occurred in the livestock combinations during 1978 as shown in Fig.6.3B. Out of eleven talukas; ten talukas are involved in the change in livestock combination. No change in combination is observed in Malshiras taluka. The combination is changed from cattle-goat to goat-cattle in Madha taluka. In Sangola taluka sheep, cattle, goat to sheep, goat and cattle. The combination of cattle, goat and buffaloes changed to goat, cattle and buffaloes in North Solapur, South Solapur and Akkalkot talukas. In Pandharpur the 1951 combination is shifted to goat cattle and buffaloes (Fig.6.3B).

C. FODDER RESOURCES AND AVAILABILITY :

Livestock live on fodder which is grown on field. They live on plant rough age and vegetable foods which man can not eat. Their bodies may be looked upon as living chemical factories which continuously convert feed into milk, meat and working energy, if man is to obtain maximum benefit from livestock, they must be fed properly. It is in this context the fodder resources, their availability and requirements in Solapur district is tried. There are three types of feeds given to the livestock in Solapur district. They are green fodder, dry fodder, and concentrates. Their availability is as below.

a) Availability of Fodder Resources :

To estimate the quantity of livestock feeds that are available in Solapur district are based on areas under fodder

crops, forests, foodcrop yields per unit of area and estimated production of residues and byproducts available from food and cash crops.

The availability of dry fodder, green fodder and concentrates in Solapur district is measured by the method suggested by National Commission on Agriculture as below :-

1) Green Fodder :

i) Cultivated area under fodder (irrigated)	...	50 M.T./ha.
ii) Cultivated area under fodder (unirrigated)	...	25 M.T./ha.
iii) Natural green grass from barran and uncultivable land, culturable waste land, permanent pastures and other grazing land and current fallows	...	1 M.T./ha.
iv) Sugarcane tops	...	20 M.T./ha.

2) Dry Fodder :

	<u>Grains</u>	<u>Straw</u>
i) Paddy straw and wheat straw	1	1.200
ii) Coarse cereals (jowar/bajara etc.)	1	1.969
iii) Pulses (all)	1	0.574
iv) Groundnut	1	0.503
v) Dry fodder from area under grass and babhul		0.400
		M.T.per hect.

3) Concentrates :

- i) Rice bran ..... 5% of the grain production of which 96% is available for feed
- ii) Wheat bran ..... 17% of the grain production of which 96% is available for feed

- iii) Gram, Tur and other pulses chuni ..... 20% of the grain production
- iv) Groundnut cake ..... 45% groundnut yield of nut in spell out of which 81% available for feed
- v) Grains used as concentrates ..... 20% of the total grain product

Based on this method the total availability of dry fodder, green fodder and concentrate in Solapur district is computed (Table 6.1).

Table 6.1 : Availability of fodder for livestock in Solapur district (in metric tonnes).

Sr.No.	Fodder	1951	1956	1961	1966	1972	1978
1.	Dry fodder	17840	17588	18916	19413	10919	18100
2.	Green fodder	189012	497846	213268	250785	115479	234196
3.	Concentrates	-	-	357	364	48	734

SOURCE : Compiled by Author.

i) Dry fodder :

The commonest fodder and indeed the sheet anchor of livestock feed in the district is furnished by straws of different kinds (wheat straw, rice straw, coarse cereals, pulses, groundnut and grass etc.). These provide the large bulk of fodder that they

require irrespective of actual food value. These are some times supplemented by more nourishing feeds. In the dry season, when little or no greenfeed is available straws become the most important, for many classes of stock. Apart from bulk, straws are characterised by their low content of nutrients and their coarseness. Their availability in Solapur district is increased slowly upto 1966 but, in 1972 it is decreased due to the effect of scarcity conditions (Table 6.1).

ii) Green fodder :

Green fodder is available from three main sources viz. cultivated fodder crops, grasses from pasture, grazing land , sugarcane tops and from forest. In Malshiras, Pandharpur and North Solapur talukas sugarcane top fodder is more available due to the more sugarcane area. Grasses from forest land, pasture and grazing lands etc. contribute substantially to livestock feed resources, sometimes these grasses are harvested and fed directly to livestock, but mostly they are grazed. Cultivated crops contribute nearly seventy five percent of the total green fodder production of the district which is very significant. There are ups and downs in the availability of green fodder during the period of investigation (Table 6.1).

iii) Concentrates :

This category of feeds consist of oil cakes, brans coarse grains, cotton seed, the outer skins of various pulses etc.

Oilseeds and their cakes, pulsegrains and byproduct of cereal crops as brans are the main sources of concentrates production in the district. The concentrate production is continuously increasing except 1972. In 1972, concentrate production is abruptly decreased due to failure of crops (Table 6.1).

b) Present position of livestock feeding :

It is observed that all the livestocks are fed with the available amount of dry fodder. They do not however, get adequate amount of green fodder & concentrates. It has been estimated that in Solapur district at present nearly seventy five percent of the bovine population is fed on crop residues like straw / kadbi etc.

At present there is greater deficiency of fodder and results into improper feeding of livestocks in many parts of Solapur district. In order to increase the fodder production, the seeds of the improved variety of fodder viz. Gajraj grass, S00 babhul, are supplied to the cultivators. Similarly in order to reduce the wastage of fodder, chaff-cutters have also been supplied to the farmers. With this view in mind, the total requirement of fodder is calculated by considering the present livestock population of district.

c) Requirement of fodder for livestocks :

In order to calculate the requirement of foddors for different categories of livestocks, one common denominator is necessary. Hence, livestock based on feed consumption has been used. The average rates of feeding of concentrates, green and dry fodder assumed for different categories of livestock is shown below.

Categories of Livestock	Rates of feeding perday		
	Concentrates in kg.	Green Fodder in kg.	Dry Fodder in kg.
<b>A. <u>CATTLE</u></b>			
1. Crossbed (milch)	2.750	20.00	6.00
2. Females over 3 yrs. of age			
i) improved cows (milch)	1.200	10.00	6.00
ii) other milch cows and not calved even once	0.125	3.50	3.16
3. Males over 3 years of age	0.170	4.96	5.65
4. Less than 3 years of age			
i) crossbed (young stock)	1.500	10.00	2.00
ii) other young stock	0.016	1.58	1.47
<b>B. <u>BUFFALOES</u></b>			
1. Females over 3 yrs. of age			
i) improved buffaloes	1.500	10.00	6.00
ii) other milch buffaloes and those not calved even once	0.410	5.72	5.08
2. Males over 3 yrs.of age	0.109	6.57	5.43
3. Less than 3 yrs.of age	0.010	1.59	1.64
<b>C. <u>SHEEP</u></b>			
1. Below 3 years	0.150	0.500	0.400
2. 3 to 12 years	0.250	0.600	0.600
3. Above 1 year	0.200	0.900	0.900
<b>D. <u>GOATS</u></b>			
1. Below 3 years	0.200	3.000	0.700
2. Above 3 years	0.200	3.500	0.700

Based on these rates the total requirement of fodder for all categories of livestock in Solapur district in metric tonnes is computed for different census year (Table 6.2).

Table 6.2 shows the total requirement of dry and green fodder and concentrates for all categories of livestock from 1951 to 1978. There is a continuous increase in requirement of fodder to livestock in Solapur district. Dry fodder requirement increased slowly upto 1966 but in 1972 it is decreased due to the drought conditions. The requirement of green fodder and concentrates is continuously increasing.

Table 6.2 : Requirement of fodder for livestock in Solapur district (in metric tonnes).

Year	1951	1956	1961	1966	1972	1978
Dry fodder	1117100	1140660	1283818	1311147	1233994	1295248
Green fodder	1367500	1543247	1732979	1709344	1722120	1909200
Concentrates	66040	102667	112025	110948	112565	130194

SOURCE : Compiled by Author.

CONCLUSION :

Cattles are more dominant in the region. Sheep and goats are mainly raised in northwest and eastern parts of the region.



The goats rank first followed by cattles. Sheep and buffaloes are nearly equal in share. The poultry is least developed in the region. The distribution of livestock categories is largely influenced by the physical environment and socio-economic factors. Significant changes have occurred in the strength of these livestock during the period under study. Proportion of goats and buffaloes have increased whereas importance of sheep has decreased during the period under investigation. Livestock combinations are highly dominated by cattle and goats. But sheep combination dominate only in the western part of the region.

Livestock lives on fodder but in Solapur district there is a deficiency of fodder. The availability of dry fodder is relatively better than the green fodder and concentrates.



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