CHAPTER XII

LIVESTOCK

Livestock constitute as one of the important assets of the agriculturist. The cattle serves him in the field where the farmer yokes the half-starved animal to his primitive plough. The cow supplies milk, the most nutritious of his food; he prepares 'ghee' (clarified butter) from this. The bullock helps him in transport, for the bullock cart is still the universal means of transport in the Indian countryside. Further, the cowdung serves as a rich manure if it is not used as a fuel. It is no wonder that cattle assumes a great significance in the life of the Indian Farmer.

Statistics regarding livestock have been collected from the Land Record Offices at Baroda and Panchmahals. Among the livestock animal, cattle and buffaloes are classified according to sex, age and utility. In this Chapter, statistic relating to the year 1961-62, by taluka-wise basis, have been used. They relate only to the animals kept in the villages and not in the towns.

Distribution of Cattlies:

The Central Gujarat, with a total area of 6,463.5 sq.miles supports a total population of 14,89,033 i.e., the total bovine population (1961-62)

1. Throughout this Chapter and also in Fig. 64 the term 'cattle' is being used to include buffaloes also.
was as much as 62 per cent of the total human (rural) population (1961). This will give an idea of the crowding of cattle on the land.

What chiefly interests us is 'Working Cattle', i.e., bullocks, cows, and buffaloes—all over 3 years in age and used for work—whether for transport or for ploughing. In the two districts, there is a total of 1,271,499 working cattle in the villages. For a total (rural) area of 6,401.3 sq. miles this works out to some 198 animals per sq.mile. A clearer picture of the situation will be revealed if we study the density of working cattle per 1,000 acres of net sown area. 12,71,499 working cattle distributed over 2,529,159.2 acres of net sown area would give a density figure 502 cattle per 1,000 acres (or 198 per sq. mile). The cattle are not, however, uniformly distributed at this rate. Eight talukas have densities more than 300 and twelve less than 200, as the following table shows:

**TABLE LXXXV**

*Working Cattle: Density per 1,000 acres of net sown area*

<table>
<thead>
<tr>
<th>More than 300</th>
<th>Less than 200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Savli</td>
<td>463</td>
</tr>
<tr>
<td>Chhota Udepur</td>
<td>450</td>
</tr>
<tr>
<td>Sankheda</td>
<td>402</td>
</tr>
<tr>
<td>Baroda</td>
<td>389</td>
</tr>
<tr>
<td>Godhra</td>
<td>195</td>
</tr>
<tr>
<td>Devgadh Baria</td>
<td>180</td>
</tr>
<tr>
<td>Lunawada</td>
<td>175</td>
</tr>
<tr>
<td>Sinor</td>
<td>174</td>
</tr>
<tr>
<td>Dohad</td>
<td>144</td>
</tr>
<tr>
<td>Bhralod</td>
<td>143</td>
</tr>
</tbody>
</table>

1. See Table LXXVII Appendix 'A'.
A comparing of Fig. 64 with Figs. 27, 21, 19 would show the double-cropped irrigated tract of northeastern Panchmahals district is the poorest while the Kanham and the Baroda Savli Region have the largest number of cattle per 1,000 acres of net sown area. The reasons for this distribution are as follows:

In the 'Double-Cropped' irrigated tract of the Panchmahals district, most of the land is occupied by forest and very limited land is available for cultivation. Being a hilly tract most of the cultivators are poor. Naturally the people keep only a small number of cattle. On the other hand, in the 'Kanham' Baroda, Savli, Sankheda, and Jabugam talukas, the load is much heavier. The people being more prosperous can afford to maintain a large number of animals for work. A Patel cultivator, for example, of the Kosindra village of the Sankheda taluka, owning 18 acres of land, maintains only two animals. Except for cotton, he does not cultivate any other kharif crops. Further, the larger figure for the Kanham area is also because of the fact that a much larger proportion of the area is under cultivation.

Thus we can compare the number of working cattle per 1,000 acres of net sown area with that per 1,000 acres of total area and the result is quite revealing.

Savli taluka which has the highest number of cattle per 1,000 acres of net sown area as per Table LXXXV above has only 236 animals per 1,000 acres of total land area. The Table LXXXVI is illustrative.
CENTRAL GUJARAT
WORKING CATTLE

NUMBER OF WORKING CATTLE
PER 1,000 ACRES OF
NET AREA SOWN

TOTAL NUMBER OF WORKING CATTLE IN CENTRAL GUJ.
1,271,499 (502 PER 1,000 ACRES OF NET SOWN AREA)

SOURCE:
BASED ON THE DATA FURNISHED BY THE DISTRICT INSPECTOR OF LAND
RECORDS BARODA AND PANCHMAHALS

Fig 64
TABLE LXXXVI

<table>
<thead>
<tr>
<th>Taluka</th>
<th>No. of Working Cattle per 1,000 acres of Net Sown Area</th>
<th>Total area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naswadi</td>
<td>267</td>
<td>198</td>
</tr>
<tr>
<td>Savli</td>
<td>463</td>
<td>236</td>
</tr>
<tr>
<td>Limkheda</td>
<td>130</td>
<td>49</td>
</tr>
</tbody>
</table>

Of the 1271,499 working cattle which were recorded 1961-62, the classification was as follows:

TABLE LXXXVII

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bullocks</td>
<td>...</td>
<td>5,99,628</td>
</tr>
<tr>
<td>Cows</td>
<td>...</td>
<td>3,14,364</td>
</tr>
<tr>
<td>He-Buffaloes</td>
<td>...</td>
<td>2,417</td>
</tr>
<tr>
<td>She-Buffaloes</td>
<td>...</td>
<td>3,55,090</td>
</tr>
</tbody>
</table>

Buffaloes are used to a limited extent in the heavy soil tract of Chhota Udepur and Naswadi taluka which together have more than 1,000 working he buffaloes. Generally cows are not used in the field because they dry up quickly and do not give calves.
Cattle Breeds:

There are several high quality cattle breeds in the area under investigation, but their number and locations are known only in a general way. The important breeds are Gir and Kankrej-type in Saurashtra.¹

The true Kankrej cattle have a compact medium body, with a well-developed hump and hanging dewlap. They are good draught animals and give more milk. The Kankrej type which has been widely recommended by the State Government, is developed mostly in the Karjan and Sankheda talukas.

In the rural areas the Government intend to introduce the famous Hariana breed. This is a dual-purpose breed with its habitat in Punjab, Delhi and U.P. It has a proportionate body. The bullocks are good for fast ploughing and transport while the cows give a good yield of milk. Individually they may yield more than 8,000 pounds in one lactation.

There are three well-known buffalo breeds, viz., Jafrabad, in Saurashtra, Mehsana in north Gujarat and Surati in south Gujarat. All these breeds are valued for their high milk yields. Jafrabad breed is specially preferred by ghee producers for the high fat content of its milk while males are good for heavy draft. This breed is now being developed at the Dairy Farm at Makarpura, 3 miles southeast of Baroda city.

The existing varieties of cattle are good both as regards milk capacity and work capacity. Cows may give on an average two pounds of milk every morning and evening, though individual cows may give up to four pounds or more during peak time. The work capacity of the bullocks is also quite good due to its vitality. The buffaloes give a slightly larger amount of milk, on an average of eight pounds every morning and evening, but this, obviously, is quite a low figure compared to the milk-capacity of well-known breeds. One of the reasons for the low quality of the breeds is that there has been no definite breeding policy till now.

For propagation of standard breeds, the Government have opened key village centres. There are eight such centres in the Baroda district, at Baroda, Savli, Miyagam, Dabhoi, Jabugam, Sankheda, Bodeli and Ghota Udepur; and ten in the Panchmahals district at Godhra, Shahera, Lunawada, Jlalod, Dabhoi, Devgadh Baria, Halol, Kalol, Sukhwara and Jambughoda. The work of up-grading the breeds is carried on at these centres and there does not seem to be much objection to this work in the villages. Except for these Government centres the villagers do not normally maintain many bulls for purposes of breeding. In 1963-64, only about 2,000 bulls were reported as breeding bulls.

For efficient breeding, the Government have also opened two Artificial Insemination Centres, at Baroda and Godhra. In course of time it is expected that each taluka Development Office will have one A.I. Unit. Unfortunately, the response from the rural side to this work is rather poor. It is hoped, however, that people will increasingly realise the utility of artificial insemination in improving the quality of their cattle.
Grazing Facilities:

The problem of cattle in the area under study is essentially one of feeding. Breeding, feeding and weeding are often quoted as the solution to the cattle problem. It will be useless to introduce good breeds unless they can be properly fed. The poor quality of nourishment is directly related to the quality of animals. The animals are just allowed to graze freely anywhere and stall feeding is nearly unknown while feeding of concentrates is absolutely neglected even in the case of milch cows. In the hot dry summer when there is an acute water scarcity, the grasses wither and dry up and the villagers find it extremely difficult to maintain proper feeding.

Grazing Lands:

It is rather difficult to define the term 'grazing Lands'. Every village has a common grazing ground but there are no larger-scale grazing lands on the pattern of the American (ranches).

In the Land Records Statistics, "other uncultivated land" (described earlier in Chapter VII above) consists of permanent pastures, culturable waste and small tree growth and scrub lands. The permanent pastures include all grazing lands and village commons. Such lands are supposed to be commonly used by the villagers for the grazing of their cattle. In 1961-62, there were 223,237 acres of such lands in the Baroda district (11.62 per cent of the total area) and 2,63,293 acres in the
Panchmahals district (12.04 per cent of the total area). Such pasture lands are much less extensive in the Santrampur Taluka (1.38 per cent in the Santrampur taluka); since forests also are scarce here, the animals move over long distances seasonally for grazing. These pasture lands are also rather scarce in parts of the Lunawada taluka where stony soil and rugged slopes preclude any extensive grass growths.

It is, however, not profitable to dwell at length on this point, not only because these pastures are usually very poor from the nutritious point of view, but also because the cattle are grazed over every other piece of land. As the Royal Commission on Agriculture observed, the cattle pick up their own fodder both from the natural grazing lands described above and from cultivated lands (after harvests), from current fallows and from forest lands. The Commission used a formula to arrive at the extent of 'grazing land'. This was to add to the area of forest open to grazing, three fourths of the area of culturable waste and one fourth of the area of unculturable waste. To this one may also add current fallows. But the point is whether these lands grow sufficiently rich grass for the cattle. They have been grazed to such an extent that very little grass now remains. No doubt, there are rich pastures in selected places. The valuable pasture lands of the Dohad-Limkheda tract in north-eastern Panchmahals district and in Waghodia taluka of the Baroda district which

---

Two types of fodder crops may be considered:

(i) crops which are already grown as food crops; and

(ii) crops which may be grown only as fodder crops.

The agricultural conditions in Central Gujarat, as indeed elsewhere in the country, are such that the farmers, particularly the small farmers find it hardly possible to devote large areas specially to fodder crops—They, therefore, depend mainly on the by-products of crops already grown. Maize and jowar are two such crops. Maize is a highly productive crop and is fit for silage also. It is sown in June, with a seed-rate of 40-50 pounds per acre. The fodder will be available in September. Unfortunately, this crop is not so widely grown in the area under investigation. Being a garden crop, it is grown only over small areas around the houses and occupies a small percentage of the cultivated land. Grown for fodder, maize can yield up to 16,000 pounds per acre.

Jowar can grow on lands of low productivity and in acres of low rainfall. With a seed-rate of 40-60 pounds per acre, jowar can yield green fodder of 15,000 pounds. The dry stems of this crop are locally termed as ‘Kabdi’.

Apart from these crops, the straws of wheat (‘bhusa’), millets and rice are also used as dry roughages for the village cattle. The composition of these roughages is as follows.¹

The significance of Jowar is clear from the above table.

In Baroda this crop is grown as a winter cash crop. Certain other crops that could be profitably grown as fodder crops are 'Bajri (a millet) 'rajka' and the 'sundhia'.

Of the improved varieties of grasses, one which has been strongly recommended by the Government is NG-73. This is suited to light, well-drained soils and is sown on well-prepared lands in the beginning of the rainy season. Some 20 pounds of seeds are sown per acre and the land is manured with ten cart-loads of cow dung per acre. Three cuttings are possible per annum and about 24,000 pounds of green grass are obtained in a year. This crop is now being distributed as part of development programme through the Taluka Development Officers.

One of the best fodder crop 'berseem', (Trifolium alexandrinum), is an annual white-flowered clover, a native of the eastern Mediterranean countries, particularly Egypt and was first introduced into India in 1904. It is now mainly important in Punjab and western U.P. It is sown between

---

**TABLE LXXXVII**

<table>
<thead>
<tr>
<th>Roughage</th>
<th>Crude protein</th>
<th>CaO</th>
<th>P O</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jowar</td>
<td>4.91</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Millet</td>
<td>5.39</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Rice</td>
<td>2.40–5.69</td>
<td>0.19–0.71</td>
<td>0.12–0.25</td>
</tr>
<tr>
<td>Wheat</td>
<td>2.39–3.28</td>
<td>0.42</td>
<td>0.15</td>
</tr>
</tbody>
</table>
September and December and is irrigated two or three times. It grows best on a rich loam. With a seed-rate of about 20 pounds per acre, it may yield between in three to seven cuttings.

Berseem is a very nutritive fodder with a protein content of up to 23 per cent and can be fed to working cattle as well as dairy animals. It can also be conserved as silage and adds to the nitrogen content of the soils.

With all these advantages, berseem is still not sufficiently grown in the area under study, chiefly due to lack of water for irrigation. Further it interferes with the rabi sowings. A further difficulty (as pointed out by the Royal Commission) is that of persuading the cultivator to grow berseem or any other fodder crops instead of either a food crop or a cash crop.

Apart from multiplication and distribution of seeds of these fodder crops, another possibilities that should draw the immediate attention of the authorities is ensilage. To start with, silage pits (as is proposed to be done near Sukhsar) may be constructed. Storage of fodder will become significant when the quality of the cattle breeds is improved. Good breeding should be immediately followed by good feeding.

The Cattle Problem:

It is often stated that the main problem of cattle in India is their number. In Central Gujarat large proportion of animals is made up of useless and young stock. Of the 14,89,033 cattle, there were (in 1961-62) 2,417 useless animals and 396,164 young ones. But this has to be viewed in the

1. Whyte: ibid, p. 370.
background of the prevailing conditions of the human society. While a
decrease in the number of cows may result in an increase in the yield
of milk, the farmer has to keep a sufficient number of working cows to
produce enough number of calves to become working bullocks. Similarly,
he requires both bullocks for work in the fields and she-buffaloes for
milk (to be turned into ghee)\textsuperscript{1}. Thirdly, a large number of young stock
is to be kept for purposes of replacement in view of the high mortality.
The death of one work-bullock or a milch-cow is enough to drive the farmer
into debts.

The main problem is really the improvement of quality and better
feeding. These have been discussed above.

**Dairy Farms:**

A number of private dairy farms exist in and around Baroda city and
Gohdra town to cater to the huge demands of their urban population. There
are perhaps some 50 licenced dairies in Baroda alone and another 20 in
Gohdra. The milk is brought from the surrounding villages, usually on cycle,
and sold to the dairies. None of these are, however, scientifically main-
tained, except the two— one the district Co-operative Milk Producers'
Union Ltd., Makarpura, Baroda, and the other Bumia Milk and Butter
Suppliers, Dandiya Bazar, Baroda.

\textsuperscript{1} Human Nutrition *vis-a-vis* Animal Nutrition in India(1957); A memorandum
prepared by the Joint Committee on Nutrition New Delhi, ICAR,p.16.
In the Panchmahals district, because of the lack of large urbanized settlements and also because of the difficulties of transport, the milk is usually converted into 'Mawa' and ghee and then sold in the weekly markets. It has been observed by the author that Mawa prepared in Godhra and around is sent to the Bombay Market. At the district and taluka headquarters, a few people keep some cows and buffaloes for milk supply but no properly maintained dairy exists.

The supply of milk runs short in summer when the milk capacity of cows, which have but little grass to feed on is considerably reduced.