Livestock are of vital significance in the rural agrarian economy in all parts of the country. Though livestock is an ally of agriculture but the least developed branches of Indian agriculture on account of it being foodgrain oriented. The causes for this can be ascribed to sociological, religious, demographic, economic and other factors. By and large, the livestock are mostly used as draught force rather than dairy stock or beef stock. Because of low level of mechanisation of agriculture in the country especially in the backward regions, livestock are playing an important role in farm operations, yet they have only a little direct commercial as well as nutritive value.

The importance of animal husbandry in dry regions are manifold. The small size of land holdings and precarious nature of
crop farming in dry areas compel the small and marginal farmers to rely upon a secondary occupation to supplement their income. As an alternative enterprise after crop husbandry, animal husbandry claims an unrivalled place in affording a fillip in the rural agrarian economy of these areas. Uncertain rainfall conditions and poor yield levels of rainfed crops offer for better utilisation of land resources for fodder production and in turn for the development of animal husbandry. The development of animal husbandry has also been acknowledged as the best means to provide gainful employment round the year to small and marginal farmers as well as landless labourers. It also improves the nutritional standards of the poor people in these areas. Since the income from crop husbandry, the principal source of subsistence, is uncertain and inadequate, the development of animal husbandry which is menacingly neglected, is highly beneficial to ward off the sufferings of the peasantry in dry regions. "Mixed farming is more valuable in an agrarian economy and it makes the farmer more progressive in his outlook on agriculture" (Jasbir Singh, 1974, p. 264). This speaks volumes on the significance and the urgency of improving and developing the animal husbandry within the agrarian sector.

In Cuddapah district livestock are contributing a large in farm operations as well as in the uplift of rural economy. But there are marked spatial differences and temporal variations in the emphasis placed on the different livestock enterprises. Recognition of these spatial differences and temporal variations in livestock distributions is basic to any consideration of the regional agricultural development.
The main objectives of the present study are:

i) to examine the areal differences in the incidence of the densities of various categories of livestock in the district,

ii) to perceive the dynamics of various categories of livestock, and

iii) to identify the livestock combinations on the basis of Doi's method.

Livestock Units:

The various categories of livestock namely, ovines, bovines, equistains etc., differ greatly in their requirements of land, labour and capital, and in the income which the farmer may derive from them. As such any comparison of the categories of livestock cannot be made with absolute numbers of livestock. "Some system of equating the different categories is a prerequisite to any comprehensive analysis" (Gillmor, 1970, p. 587). In order to obtain any comparison, the various species must be reduced to some more or less common denominator (Talman, 1979, p. 156). Equalisation of various categories of livestock involves many inherent difficulties, not least of which is the inadequacy of available livestock data. No simple technique can eliminate all the problems but one concept is available, however, by which the numbers of different livestock categories may be related one with another on the basis of food requirements and compared with other categories of livestock production, and that is the livestock unit or animal feed unit. This is indeed a very commonly and most satisfactorily used method of achieving
Table 10.1

I.C.A.R. Conversion Scale of Absolute Number of Livestock into Livestock Units

<table>
<thead>
<tr>
<th>Livestock type</th>
<th>Age groups (in years)</th>
<th>Livestock</th>
<th>Livestock Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cows</td>
<td>Over 3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>She-buffaloes</td>
<td>Over 3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Bullocks and Bulls</td>
<td>Over 3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>He-buffaloes</td>
<td>Over 3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Horses, Ponies and Mules</td>
<td>Over 3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Camels</td>
<td>Over 4</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Young stock of cattle, buffaloes, horses, ponies and mules</td>
<td>1-3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Young stock of cattle, Buffaloes, horses, ponies and mules</td>
<td>Under 1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Young stock of camels</td>
<td>Under 4</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Sheep and goats</td>
<td>Over 1</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Sheep and goats</td>
<td>Upto 1</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>Donkeys</td>
<td>--</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Pigs</td>
<td>--</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Poultry</td>
<td>--</td>
<td>100</td>
<td>1</td>
</tr>
</tbody>
</table>
comparability between the various branches of production in regional
studies on animal husbandry (Coppock, 1964, p. 67-68; Gillmor, 1970,

For analysis the pressure of livestock, highlighting the
regional interests and importance, and comparing the areal differences
in the distribution of various categories of livestock in the present
study, the animal feed unit developed by Indian Council of Agricultural
Research, 1971 is adopted as criterion for the conversion of absolute
numbers into homogeneous livestock units.

Distributional Aspects of the Livestock:

The major problem which arises in studying the
distribution of livestock units is the selection of the category of land
to which the units should be compared. Broadly speaking, livestock
unit densities may be calculated on the basis either arable land or
pasture and grazing land. Since much importance is being given to
arable land in this country, land used for rough grazing and pasture
development is very meagre and hence, the study of distribution of
livestock in relation to grazing land may not provide any
comprehensive picture. Owing to paucity of sufficient grazing and
pasture grounds for feeding of the livestock in the country, stall
feeding is the common practice especially to the main categories of
livestock. The by-products of most of the non-legumenous and
legumenous crops which are left after threshing specially called dry
fodders are used through out the year. It was felt that the possible
solution to the problem of showing the distribution of livestock units
lay in the use of arable land. Nevertheless, a map on this basis presents satisfactory indication of livestock distribution. So that the number of livestock units are calculated to 100 hectares of arable land for the Livestock Census Year 1987.

The proportion of each category of animal in the total livestock is calculated and mapped at mandal level for the 1987 Census and mapped their concentration in order to understand the relative dominance of each category of livestock changes in the proportion of various categories of livestock production are examined between the two Livestock Census Years 1972 and 1982 at taluk level. Animal husbandry may be diversified in character at the spatial distributional patterns. In such a case livestock combinations are identified on the basis of Doi's method to understand the specialisation or diversification in the structure of livestock production.

Spatial Distributional Pattern of Total Livestock Production (1987):

The spatial distribution of livestock production is related to many factors such as the suitability of physical environment, availability of fodder and grazing land, nature of economy, type of farming, size of land holding, cropping pattern, standard of living of people, pressure of population, nutritional aspects of people, transport network and marketing compatibility and temperamental predilections of farmers. The livestock production comprises bovine population like cattle and buffaloes; ovine population like sheep and goats and other livestock includes pigs, horses, ponies etc. As per the Fourteenth Quinquennial Livestock Census, 1987, total livestock units in Cuddapah district numbered about 683 thousands.
The pressure of total livestock units is calculated to 100 hectares of arable land. On an average there were 193 livestock units per 100 hectares of arable land in Cuddapah district. Spatially, the values of density of livestock units varying from a minimum of 35 units to a maximum of 684 units per 100 hectares of arable land.

High (201-250) and very high (> 250) concentrations of livestock units per 100 hectares of arable land are found in 15 mandals distributed in the areas of eastern valley and a few mandals in the northern part of the district. Here, the limited availability of agricultural land is one of the reasons for high densities of livestock. Despite the fact that the eastern valley region of Cuddapah district is significantly potential zone for the sustenance of large number of livestock units. Because of high rainfall conditions, perennial grazing facilities in the vast stretches of forest cover, year round supply of dry fodder due to success of crop farming especially paddy cultivation, high purchasing power of the people due to agricultural prosperity and good transport and market facilities etc., are all conducive for supporting large number of livestock units in this region.

Moderate (151-200) concentration of livestock units is noticed in 5 mandals, out of which, three mandals located in the adjoining area of forest cover in the southern upland region. Here, large number of cattle units are reared both for farm operations and for milk production.

Low (< 150) pressure of livestock units is found in 30 mandals which accounted for 60 per cent of the total mandals in the
Almost all these mandals are distributed in the western plains, north-eastern valley and some parts of southern plateau. Primarily, the low density of livestock units is on account of the low carrying capacity of the land and the low agricultural efficiency. In many parts of western plains of low livestock pressure rainfall is erratic and meagre and perennial grazing lands are almost absent. Here, cropping is mostly confined to one season with millets and groundnut as dominant crops and in effect, low production of dry fodder, low population density, and poor socio-economic conditions of the people, therefore, minimised the supporting of more livestock.

**Changes in the Distribution of Total Livestock Units (1972-1987):**

The total livestock units for the district as a whole are seen to have declined by 0.6 per cent of 4483 units over the period 1972-1982 and it was 3.1 per cent decrease or 21,677 absolute decline of livestock units over the period 1972-1987. The most striking changes over this period took place in the numbers of cattle, sheep, pigs and donkeys with a quite significant decline to be seen in those categories of livestock units, while the numbers of buffaloes, poultry and goats showed a distinct rise of 3.1 per cent.

Viewed on a spatial basis, the most marked decline in total livestock units between 1972 and 1982 was recorded in Rajampet (20.6%), Pulivendula (9.2%), Rayachoty (3.2%) and Sidhout (2.4%) taluks. In all these taluks, much decline was seen in the category of cattle units. This is especially due to changes in the practices of crop husbandry from traditional animal power based farming
Table 10.2

Changes in the Various categories of Livestock Units in Cuddapah District

<table>
<thead>
<tr>
<th>Livestock category</th>
<th>Livestock Units</th>
<th>Per cent growth over the period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1972</td>
<td>1982</td>
</tr>
<tr>
<td>Cattle</td>
<td>309973</td>
<td>255571</td>
</tr>
<tr>
<td>Buffaloes</td>
<td>287012</td>
<td>323066</td>
</tr>
<tr>
<td>Sheep</td>
<td>59885</td>
<td>53312</td>
</tr>
<tr>
<td>Goats</td>
<td>28631</td>
<td>42549</td>
</tr>
<tr>
<td>Pigs</td>
<td>3189</td>
<td>2347</td>
</tr>
<tr>
<td>Poultry</td>
<td>10584</td>
<td>19502</td>
</tr>
<tr>
<td>Others</td>
<td>5309</td>
<td>3755</td>
</tr>
<tr>
<td>Total</td>
<td>704583</td>
<td>700100</td>
</tr>
</tbody>
</table>

Table 10.2a

Changing Spatial Distribution of Total Livestock Units in Cuddapah District

<table>
<thead>
<tr>
<th>Taluk</th>
<th>Total Livestock Units</th>
<th>Per cent growth over the period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1972</td>
<td>1982</td>
</tr>
<tr>
<td>Cuddapah</td>
<td>62146</td>
<td>69703</td>
</tr>
<tr>
<td>Rayachoty</td>
<td>159655</td>
<td>154543</td>
</tr>
<tr>
<td>Kamalapuram</td>
<td>41014</td>
<td>46283</td>
</tr>
<tr>
<td>Rajampet</td>
<td>118577</td>
<td>94166</td>
</tr>
<tr>
<td>Sidhout</td>
<td>52152</td>
<td>50886</td>
</tr>
<tr>
<td>Badvel</td>
<td>66842</td>
<td>71030</td>
</tr>
<tr>
<td>Jammalamadugu</td>
<td>67883</td>
<td>70281</td>
</tr>
<tr>
<td>Proddatur</td>
<td>72196</td>
<td>84992</td>
</tr>
<tr>
<td>Pulivendula</td>
<td>64218</td>
<td>58316</td>
</tr>
</tbody>
</table>
operations to mechanised farming and change in the preference of a milch breed from cow to buffalo. In the case of eastern and southern taluks, the commercial crop farming has advanced the farmer to use the cropland at an intensive level based on modern agro-technology. As a result, the farmer's interest on animal husbandry, usually, has not been encouraging.

The increase in total livestock units is found in five taluks, out of which, Proddatur (17.7%), Kamalapuram (12.8%) and Cuddapah (12.2%) taluks have shown a striking increase. The pronounced urban character of these three taluks and the establishment of milk chilling plant at Mydukur located in between Cuddapah and Proddatur have facilitated forby spectacular increase of milch breeds especially buffalo units for the development of dairying in order to fulfil the needs of urban people.

It is observed that in the face of increasing specialisation of commercial intensive crop husbandry in different parts and the orthodoxy of the farmer whose attachment to the grain still unloosed, the animal husbandray could not break the chains of age-old practice of farming and it yet to be practised as a lucrative subsidiary occupation.

Distribution of the Various Categories of Livestock (1987):

The relative position occupied by the various forms of livestock and the areal variations occurring in this may be examined, on the basis of the proportion of the total livestock units accounted by each category of livestock. The density of each category of
livestock is calculated to 100 hectares of arable land.

Distribution of Cattle Units (1987):

Cattle which includes both cows and bullocks are the significant livestock accounting 36.2 per cent of the total livestock units in Cuddapah district. Relatively, cattle occupied second position in the total livestock units of the district. Large number of cattle in the district are indigenous and are nondescript. They are small in size and of low productivity both in terms of milk production as well as energy force. Most of the local breeds withstand to drought and disease. There are two groups of cattle distinguished as milch cattle and draught cattle. Bullocks are the draught cattle which are the main source of motive power in agricultural operations and cows meant for milk in most of the ruralities. Cattle are therefore, regarded as the consummation of the district's agriculture.

There is a distinct spatial variation in the distribution of cattle units ranging from a minimum of 8.5 per cent in Cuddapah mandal to a maximum of 70.9 per cent to the total livestock units in Peddamudiam mandal. High (40.1 - 50%) and very high (> 50%) concentration of cattle units are distinguishly found in two regions in the district namely, southern plateau and south-eastern valley. In these two areas there is considerable scope for the growth of cattle on account of (i) availability of grazing land in the nearby forest areas, (ii) sufficient supply of dry fodder especially paddy, and groundnut, (iii) mild climatic conditions with moderate to high
CUDDAPAH DISTRICT
Cattle Units - 1987

INDEX
(as percentage of total livestock units)

\[
\begin{align*}
\text{\textless} & \ 20 \\
\text{\textless} & \ 30 \\
\text{\textless} & \ 40 \\
\text{\textless} & \ 50 \\
\text{\textgreater} & \ 50
\end{align*}
\]

FIG: 10.2
rainfall conditions, (iv) high cropping intensity and productivity due to development of irrigation, and (v) year-round need of draught cattle to perform many agricultural functions such as ploughing, harrowing, threshing, harvesting, lifting of water and transporting the inputs and outputs in the small size of land holdings.

Moderate (30.1 - 40%) proportion of cattle units to the total livestock units is noticed in 8 mandals distributed in Pulivendula basin of western plains and central portion of eastern valley.

The small contribution of cattle to total livestock units, less than 20 per cent, is recorded in 48 per cent of the total mandals of the district. These mandals mostly located in the western plains and northern part of eastern valley. In these areas, the reasons are not far behind to explain this small contribution of cattle to the total livestock units. The low rainfall conditions in the western plains, scarcity of grazing lands, non-availability of sufficient dry fodder due to inferior cropping systems, low carrying capacity of land and limited agricultural activities because of seasonal cropping are not favourable for the sustenance of large cattle units especially draught cattle.

The average density of cattle units per 100 hectares of arable land in the district is about 69 in the year 1987. Spatially, the density of cattle units ranges from a minimum of 14 units in Jammalamadugu mandal to a maximum of 338 units in Pullampet mandal. Striking densities of (51-75 & 75 units) cattle per 100 hectares of arable land are found in 22 mandals. These mandals of high carrying
CUDDAPIAH DISTRICT
Density Of Cattle Units - 1987

INDEX
(Per 100 ha of arable land)

- ≤ 25
- 26 - 50
- 51 - 75
- > 75

FIG: 10:3
capacity are found in the southern part of the district where agriculture is more opulent. The low carrying capacity (\(<50\) cattle units/100 hectares of arable land) in terms of cattle units is found in 28 mandals distributed over western plains and north-eastern valley. This low carrying capacity of cattle units is due to low requirements of them for the limited agricultural operations, dry climatic conditions and high densities of other livestock especially black cattle (buffalo).

The changes in cattle figures are much pronounced during the period 1972-87. In terms of absolute figures, there were 309,973 cattle units in 1972 declined to 255,571 units in 1982 and further declined to 247,540 units in 1987, showing a net decline of 54,402 units or 17.6 per cent decrease in the last 15 year period. This significant decrease in cattle units is due to change in agricultural practices and change in the preference of a breed for milk production.

**Distribution of Buffaloes (1987):**

Buffaloes are overwhelmingly the most important and the leading livestock accounting 49.7 per cent of the total livestock units in the district. Buffaloes play an important role both as draught force and as milch stock. However, buffalo as a milk breed is more prevalent and pronounced rather than as a draught animal. Since it is slow and less efficient in farm operations, buffalo is not comparable to bullock and hence, it as a draught breed is less prominent in the region. Buffaloes stand well under stall feeding facilities better than the cattle but also thrive on all kinds of course roughages. They
CUDDAPAH DISTRICT
Buffalo Units - 1987

INDEX
(as percentage of total livestock units)

\[
\begin{array}{c}
\text{\leq 40} \\
401-50 \\
501-60 \\
601-70 \\
> 70
\end{array}
\]

FIG: 10.4
thrive well in the humid and sub-humid climatic conditions. Their number and distribution is also patiently determined by the demand for milk both by the rural and urban population.

Significant variations in the spatial distribution of buffalo units are exhibited ranging between a minimum proportion of 13 per cent in Peddamudiam mandal to a maximum proportion of 81.9 per cent in Cuddapah mandal. High (60.1-70%) and very high (> 70%) concentrations of buffalo units are found in 14 mandals in the irrigated area of K.C. Canal system and high rainfall zone of north-eastern valley. In these two areas, good irrigation facilities and high rainfall conditions, availability of both green and dry fodders, the location of milk chilling plant in the midst of these two areas and great demand for milk from two important urban centres like Cuddapah, the district head quarter, and Proddatur, equally an important commercial urban settlement and lastly the low density of cattle population are all accounted for high proportion of buffalo units. Moderate concentration (50.1 - 60%) of buffalo units is noticed in 15 mandals and many of these mandals are situated in the distinguished regions of buffalo population.

Low (40.1 - 50%) and very low (< 40%) proportions of buffalo units are found in 21 mandals distributed in southern plateau, south-eastern valley and Pulivendula basin of western plains where cattle population are more prevalent.

The average density of buffalo units per 100 hectares of arable land in the district is about 96 units. This is a high density indeed than the densities of all other categories of livestock. High
CUDDAPAH DISTRICT
Density Of Buffalo Units - 1987

INDEX
(Per 100 ha of arable land)

- 50
- 50-100
- 100-150
- > 150

0 Km 30

FIG: 10-5
Plate 10.1a A view of the grazing of large number of she-buffaloes on the dried up irrigation tank of Vontimitta village.

Plate 10.1b Stall feeding of milch buffalo and cow.
density of more than 100 buffalo units per 100 hectares of arable land is noticed in 16 mandals distributed in the southern and central areas of eastern valley and some parts in the northern part of the district. On account of limited availability of arable land, the density of buffalo units is high in south-eastern valley region. However, the potential status of arable land too supports more number of buffalo units. The low carrying capacity of the buffalo units (< 20 units) is found in 20 mandals distributed in all over western plains and southern plateau.

An interesting feature regarding buffalo population in the district is a striking increase in their units in the last 15 year period. The total buffalo units were increased from 287,012 in 1972 to 323,066 in 1982 and further increased to 338,926 in 1987 indicating a net increase of 51,914 units or 18.1 per cent. This marked increase in buffalo units is due to utmost preference given to buffalo as an important milk breed than cow and its well sustenance under stall feeding conditions. In this district buffalo is the chief producer of milk and it is the source of daily or monthly income to many small and marginal as well as landless families who rely upon buffalo for their livelihood.

**Distribution of Draught Force (1987):**

In this district draught force i.e. animals used in the agricultural operations is essential for many agricultural operations on account of the unmechanised farming, small size of land holdings and poor socio-economic conditions. Draught force in the district
CUDDAPAH DISTRICT
Draught Force Units - 1987

INDEX
(as percentage of total livestock units)

- ≤ 20
- 20.1-30
- > 30

0 30 Km

FIG: 106
chiefly consists bullocks and he-buffaloes. However, bullocks will continued to be in demand for farming purpose and they out number the he-buffaloes because the he-buffalo has not proved as useful working animal as the bullock. In the total draught force, bullocks accounted for about 85 per cent in the district.

On an average, the draught force has accounted for 26.1 per cent to the total livestock units in the district in 1987. However, there is significant areal variation in the distribution of draught force which is evident from the fact that the lowest proportion of draught force accounted for 8.5 per cent in Rajampet mandal and the highest 62 per cent in Peddamudiam mandal. High proportion of draught force (>30%) to the total livestock units is found in 15 mandals distributed largely in southern plateau and south-eastern valley regions where cattle population is very high. It is natural that the bullock force has dominated in the above mentioned areas. Besides this factor, these two areas required more number of working animals because of high intensity of farming and high farming efficiency.

Moderate proportion (20.1 - 30%) of draught force units is noticed in 50 per cent of the total mandals in the district. Low proportion (<20%) of draught force units is found in 10 mandals mostly located in western plains where farming operations are comparatively less than the other areas of the district.

About the distribution of draught force units per 100 hectares of arable land, on an average, there are 51 draught animal units in the district as a whole. The range in the density of draught
CUDDAPAH DISTRICT
Density Of Draught Force Units-1987

INDEX
(Per 100 ha of arable land)

- ≤ 25
- 26-50
- 51-75
- > 75

0 30 Km

FIG: 10-7
animal units is 12 (Muddanur mandal) to 254 (Pullampot mandal). High density of more than 50 draught animal units per 100 hectares of arable land is found in 18 mandals. These mandals are almost situated in the draught force concentrated areas of southern plateau and eastern valley. These areas of red soil coverage call for more draught force for ploughing the soil again and again than the areas which cover with black soil. The development of irrigation and intensive cultivation of crops in eastern, central and southern areas all for more draught force to continue the farm operations successfully.

There has been a decline in the number of draught force units from 197,328 units in 1972 to 178,188 units in 1987 thus showing a net decrease of 19,140 or 9.7 per cent. This decrease is due to mainly change in the practices of farming from traditional animal power oriented to small scale mechanised agriculture especially in the affluent and receptive farming communities.

It is observed that most of the peasants irrespective of their size of land holding, barring a very few, maintain a pair of bullocks for doing farm operations. This is to be continued until and unless some drastic change is brought in the practices of farming and mechanisation of agriculture. Therefore, the draught animal has been playing, and will be continued to play a significant role in the primary economic activity of this backward region.

**Distribution of Milch Stock (1987):**

The milch stock in the district is chiefly confined to cows and she-buffaloes. Numerically, the she-buffalo is the most
important breed as a milk yielding animal as it accounts for 86 per cent of the total milch stock in the district. It shows that cow is not treated as an important milk yielding animal in the district. The importance of a she-buffalo and a bull calf can be judged from a local adage, 'when fortune favours a farm family, the she-buffalo drops a heifer and the cow a bull calf'. Besides, the house wife takes a greater care of the she-buffalo as the producer of milk and fat which are her daily requirements, a cow is looked after well by the cultivator mainly she is the mother of a bullock (Jasbir Singh, 1974, p. 272).

Very limited number of farmers in this region specialise in dairying on a large scale, and the majority of the cultivators keep one or two milch stock units according to their means, size of land holding and the nature of farming. Total milch stock units contributed 27.2 per cent of the total livestock units in the district. The range in the proportion of livestock units accounted for by milch stock 10 per cent (Obulavari Palle mandal) to 40.5 per cent (Mydukur mandal).

High proportion (> 30%) of milch stock is noticed in 8 mandals, which are located in the close proximity of Cuddapah and Proddatur urban settlements. On account of heavy demand for milk from urban population and milk chilling plant at Mydukur, a significant proportion of small and marginal farmers as well as landless labourers rear milch stock for their livelihood by supplying milk to the dairy as well as to the urban market. Moderate proportion (20.1 - 30%) of milch stock is found in 28 mandals located largely
CUDDAPAH DISTRICT
Density Of Milch Stock Units - 1987

INDEX
(Per 100 ha of arable land)

- ≤ 25
- 25 - 50
- 50 - 75
- > 75

0 Km 30

FIG: 10-9
in the eastern valley region and in many parts of the western plains. Low proportion (<20%) of milch stock is confined to southern up land area and western parts of the plains. It is interesting to note that she-buffaloes out number the cows as milk yielding animals in all the mandals except Chakraypet and Galiveedu in the southern plateau.

The number of milch animals expressed per 100 hectares of arable land varying between a minimum of 12 in Simhaadripuram mandal to a maximum of 151 in Pullampet mandal and an average of 53 in the district as a whole. High density of milch stock of more than 50 milch stock units per 100 hectares of arable land is confined to 14 mandals distributed in eastern, south-eastern and central parts of the district. Moderate density of 25-50 milch stock units is found in 16 mandals distributed over central and southern parts of the district. The high carrying capacity of milch stock in these areas is due to availability of water, fodder, low man-land ratio, high density of population and market. Low carrying capacity of milch stock of less than 20 milch units is found in 20 mandals distributed in the rain-shadow area of western part of the district.

There has been a spectacular increase in the number of total milch stock units in the district during the period 1972-87 as is evident from the fact that the total milch stock units were increased from 108,635 in 1972 to 185,747 in 1987, thus indicating a net increase of 77,112 units or 71 per cent growth rate. This striking increase in the total number of milch stock is accounted by a distinct rise in the milch buffaloes. Milch buffaloes have increased from 83,028 units in 1972 to 158,759 units in 1987, indicating a net increase of
75,731 or 91.2 per cent growth rate. It is almost a two-fold increase which is a distinct change indeed in the last 15 year period. But in the case of milch cows, the increase is marginal with 5.4 per cent growth rate.

From the above analysis it is observed that she-buffalo is the most suited and recognised milk yielding animal in the district. With the spectacular increase of milch-buffaloes, the small-scale-household confined dairying has to be excogitated as a subsidiary occupation to alleviate the tribulations of the small and marginal farmers of this drought prone district.

### Distribution of Sheep (1987):

Sheep are more suited to dry climatic conditions and poor grass land vegetation. They are largely reared by small and marginal farmers belonging to the weaker sections of the community in the district. The sheep commonly found in this district are non-descript and indigenous and most of the breed are mutton type.

The proportion of sheep units in the total livestock units in the district accounted for 6.3 per cent in 1987. The range in the percentage of livestock units accounted for by sheep is from 0.4 in Mylavaram mandal to 25.2 in Thondur mandal. High concentration of more than 10 per cent in the total livestock units is found in 9 mandals. They are Thondur, Muddanur and Veerapunayuni Palli mandals in the western plains; L.R. Palli and Sambepalli in the southern plateau region; and B. Mattam, B. Kodur and Badvel mandals in the north-eastern valley region. Moderate proportion (5.1-10%) is noticed.
in 17 mandals distributed in different parts of the district. The spatial pattern of sheep units in Cuddapah district revealed that sheep are of major importance in mountainous areas of north-eastern part and on the extensive tracts of upland in the southern and south-western parts of the district. In those areas grazing facilities are abundant and semi-arid climatic conditions are more favourable.

Low proportion (< 5%) of sheep is noticed in 24 mandals mostly located in the south-eastern valley, the canal irrigated tract of the central part of the district. The scarcity of grazing lands and the presence of wet soils in the canal irrigated tract and unfavourable climatic conditions i.e. frequent occurrence of cyclonic storm effects where susceptibility to disease is hard in south-eastern valley may not be conducive for sustainable sheep production.

The proportion of sheep in the total livestock units has decreased markedly during the period 1972-87 in the district. It is clear from the figures that they have decreased from 59,885 sheep units in 1972 to 42,684 sheep units in 1987 showing a net decrease of 17,201 or 28.7 per cent decrease growth rate. Sheep population are not as hard as goat population. Sheep population are greatly susceptible to diseases like anthrax, sheep fox, entero-taxaemia etc. Once sheep susceptible to disease, heavy mortality may be recorded and such attacks are not uncommon in the district. Sheep rearing is a fortune of diseases. Consequently, the interest among the sheep rearers has been gradually declining about the sheep rearing.
Plate 10.2a Grazing of sheep in the groundnut and other cultivated fields after harvesting the crop.

Plate 10.2b The chopping of plant leaves by the goats in the scrub jungles causes considerable damage to the areas under afforestation.
It is significant to state that sheep rearing can be carried well in the rain-shadow region of western plains where dry climate and vast stretches of fallow land and waste lands are more favourable for sustained sheep production.

Distribution of Goats (1987):

Goats are allied to sheep, but are much harder and more active. These are mainly raised for meat. In arid and semiarid areas goat breeding is more lucrative than the other breeds on account of the low cost of maintenance and their sturdy nature. They can easily thrive under stall-fed conditions, but it is the foe of afforestation.

The mean proportion of livestock units comprised by goats in the district is 5.1 per cent. The range in the percentages of livestock units accounted for by goats is 1.5 per cent in Obulavari Palli mandal to 13.5 per cent in Mylavaram mandal. Goats are of major importance in mountainous areas, areas adjoining to forests and scrub jungles. High proportion ( > 10%) of goats is confined to the mountainous and forest areas of Sidhout, B. Mattam and Vemula mandals. The presence of scrub jungles in Muddanur and Mylavaram mandals is an advantage factor for the rearing of goats with high concentration.

Moderate concentration of goat units (5.1 - 10%) is found in 19 mandals and they mostly distributed in the western, southern and north-eastern parts of the district where forest cover is present. Low proportion of goats is observed in 26 mandals located mostly in the central and south-eastern parts of the district.
It is interesting to mention that goat units have increased from 28,631 in 1972 to 35,104 in 1987, indicating a net increase of 6,473 or 22.6 per cent increase in the last 15 year period. In the district, forests are now prohibited areas for the grazing of goats because of their habit of nibbling of plants causes great damage to areas under afforestation. Otherwise, goat population can flourish very well in the district due to extensive grazing lands in the forest areas. If their feeding, breeding and management are all planned, goat population will certainly, become the source of livelihood to the poorer sections of the community.

Distribution of Pigs:

Pig keeping is mainly practiced by depressed classes who are socially backward and economically poor. Swine husbandry is not an important type of livestock production on account of the poor quality of breed and other genetic characteristics. On an average, Cuddapah district has 0.4 per cent of pig units of the total livestock units. The practice of pig rearing is confined to 35 mandals only. The highest proportion of pig units is found in Pulivendula mandal (3.7%) followed by Rayachoty (2%), Chinnamandem (1.8%), Cuddapah (1.7%) and Mylavaram (1.4%). In the rest of the mandals pig units are insignificant and accounted less than 1 per cent of the total livestock units.

Distribution of Poultry:

In the recent times, Poultry production has been of the greatest significance in the district providing a valuable source of
income at all farming levels. Poultry units accounted for 2 per cent of the total livestock units in the district in 1987. Poultry units are kept in all mandals with varied proportions. The high proportion of Poultry units may generally be found in the areas with good transport network and which are in close proximity to urban centres. The highest proportion of poultry is found in Lingala (7.2%) mandal followed by Rajampet (6.5%) and Cuddapah (4.3%).

In the last 15 year period there has been a significant rise in the number of poultry units increased from 10,584 in 1972 to 13,572 in 1987, showing a net increase of 2,988 poultry units or 28.2 per cent growth. With the changing dietary habits, improved socio-economic conditions and feasibility of market and other infrastructural facilities, the commercial poultry farming has been getting more importance as like as an industry in the case of receptive farmers and educated unemployed youth.

Livestock Combinations (1987)

It is obvious that no single category of livestock is to be found completely in an areal unit. Just like crops, various categories of livestock are to be reared in combination. Although there are major spatial variations in the significance of the individual categories of livestock, different areas specialise with different combinations of livestock and which are distinguished from one another. The diversified physico-socio-economic conditions may profoundly influence the specialisation of animal groups. To impress upon the significance of the specialisation of livestock types in varied
associations, livestock combinations need to be elicited. In order to identify
the livestock combinations, Doi's method of least squares is employed.

As per the 1987 Livestock Census data, three major livestock
combination types are identified on the basis of Doi's method. It is
significant to state that cattle and buffalo have figured in all the livestock
combinations and in all the areal units by occupying the first two ranking
positions.

Cattle and Buffalo Regions:

The livestock combination specialise in one type of animal to
the exclusion of all others is found in 5 mandals. Cattle are figured in
Paddamudiam and Sambepalli mandals as a leading category of livestock while
buffalo exhibited in Cuddapah, Vallur and Mylavaram mandals. In the case of
buffalo region, the concentration of household commercial dairying in the
vicinities of urban centres like Cuddapah and Proddatur tended to favour and
impetus more for the raising of milch buffaloes.

Buffalo-Cattle Livestock Raising Combination:

This is the most common and leading livestock combination
which accounts for 58 percent of the total mandals in the district. This
combination has been confined to central and northern parts of eastern valley
and also most of the parts of western plains.

Cattle-Buffalo Livestock Raising Combination:

This is another most frequently encountered to livestock
combination found in 28 per cent of the total mandals in the district.
Cattle-buffalo combination sprawled over cattle dominated areas of southern
plateau and south-eastern valley.

Buffalo-cattle and cattle-buffalo combinations are identical
which are associated with only two animal groups but the difference
is in their relative positions. These two combinations are the most prevalent in all over the district and together accounted for 86 percent of the total mandals. It reveals that the buffaloes are raised either as first rank category or second rank category in the combinations are mostly meant for milk production either for subsistence or for commercial purposes but they are least important in farm operations. While in the case of cattle, it is vice versa. It means most of the cattle rearing for draught force purpose and their importance in milk production is negligible.

**Buffalo-Cattle-Sheep Livestock Raising Combination:**

Where sheep are dominant, there is always a three animal combination. This combination is found in Thondur and Muddanur mandals. The ideal climatic conditions with low rainfall tend to favour for rearing of sheep in large numbers and included in the combination.

From the present analysis it is observed that the district has been characterised with the specialisation rather than diversified livestock farming. The bovine population has dominated all other categories of livestock and constituted with greater specialisation either as a supplementary or competitive or complimentary enterprise of the farmers of this region.

**Conclusion:**

The contrasting spatial distributions of the different types of livestock with in the district have been exhibited that the district
endowed with propitious environment for a plentitude of livestock resources especially cattle, buffaloes, sheep, goat and poultry. Because of the stimulatory environment created by irrigation, fodder cultivation, transport accessibility, market compatibility and changing agro-technology, the role of cattle has diminished, while that of buffaloes enhanced spectacularly. It reveals that there has been a great impetus for the development of dairy farming as a subsidiary occupation to crop husbandry. The favourable agro-climatic and socio-economic conditions as well as large numbers of she-buffaloes in the areas of Cuddapah, Kamalapuram, Proddatur and Jammalamadugu taluks are conducive for the development of intensive dairying. With the help of modern innovations and diffusion methods the White Revolution can be brought along with the Green Revolution in this region.

Though there was a decline in sheep population during the study period, the place of ovine population consists sheep and goats is yet to play a sufficiently significant role in the livestock economy of the district. Vast areas under forest, extensive grazing lands and semi-arid climatic conditions are most favourable factors for the development of sheep and goat rearing in the eastern and southern taluks namely, Rajampet, Sidhout, Badvel, Rayachoty and Pulivendula. In this region, the development of mutton breed is considered suitable. Especially for the development of commercial sheep ranching which is more profitable than goat, but which is very susceptible to disease, the intensive treatment and health care as well as breeding facilities must be rendered to all the interior places.
The study has revealed that poultry farming has also significant place to play in the livestock economy of the district. Requirements of small space, low capital, quick returns and well distributed turnover round the year make this enterprise lucrative in both rural and urban areas as well as small and large farmers. By paying proper attention to management of this household industry, it has become a dependable source of profit and has consequently attracted large investment, from entrepreneurs among whom are farmers, labourers, unemployed persons and big financiers.

On the whole the propitious environment and distribution of different types of livestock in the district may be considered for the development of diversified livestock farming on sound edifice by applying modern technology. Since crop husbandry is unstable, unprotective and unproductive in most of the rain-shadow areas of the district, animal husbandry has to be excogitated as a subsidiary occupation to alleviate the economy of the peasant community. Here the diversification in the agriculture i.e. mixed farming must be brought to avoid the environmental and socio-economic problems created by monocultures and to make maximum use of available biodiversity to adapt agriculture to changing environments and adverse conditions. The concept of White Revolution is to be placed on an equal plane with Green Revolution and both these diversified farming activities must be made to travel together to achieve the noble destination of the rural economic uplift of this backward region.