INTRODUCTION

Genesis: My longstanding close association with the Gujarat College of Veterinary Science & Animal Husbandry, Gujarat Agricultural University, Anand Campus, Anand as a teacher of Economics and Marketing of Livestock & Livestock Products, paucity of literature on livestock marketing in India in general and its non-availability on regional basis, in particular, inspired me to select this subject for intensive research for my doctoral thesis. Gujarat, with fairly rich with good breeds of cattle and buffaloes, thickly spread over all its parts, could not yet develop a system of orderly marketing of cattle and buffaloes and other livestock.

Objectives: This study has been undertaken with the following main objectives:

1. To identify different breeds of cattle and buffaloes and to gauge their density in different parts of Gujarat;
2. To bring out and analyse the demand determinants for cattle and buffaloes;
3. To locate and analyse the sources of supply of cattle and buffaloes;
4. To examine marketing practices prevailing at different markets for cattle and buffaloes and suggest measures to raise their operational efficiency.
Background information about Gujarat: Gujarat, for the purpose of this study, means the territory of the present Gujarat State as was constituted on 1-5-1960. The history of Gujarat is replete with frequent regional disturbances which had their impact in the field of agricultural marketing and the livestock economy. These have been referred to at appropriate places.

Gujarat State is situated on the west coast of India between 20.1 and 24.7 degrees North latitude and 68.4 and 74.4 degrees East longitude. It is surrounded by the Arabian Sea on the West, Pakistan in the North-West, Rajasthan in the North-East, Madya Pradesh in the South East and Maharashtra in the South. The State has 195984 square kilometres of area and had population of 26697000 as per population census of 1971, which works out to be 5.7% of union territory and 4.8% of India's population.

The State is divided into 19 districts, has 184 talukas/mahals, 200 cities/towns and 18275 populated villages and 422 unpopulated ones. The State has two distinct physio-geographic regions (a) Gujarat Main Land comprising of North, Central and South Gujarat plains and (b) Peninsular Gujarat covering Saurashtra and Kutch.

The average rainfall varies from 33 to 152 cms. Some parts of Dangs have rainfall around 190 cms; southern and eastern districts—Dangs, Valsad, Surat, Bharuch, Vadodara, the Panchmahals and Sabarkantha—have average rainfall between 76 and 152 cms; northern districts—Kheda, Ahmedabad, Gandhinagar, Mehsana and Banaskantha—have average rainfall between 51 and 102 cms; the Saurashtra region has average rainfall between 40...
63 cms and the Kutch area is having the lowest average rainfall of 33 cms. On account of erratic nature of the incidence and distribution of rainfall, certain areas of North and Peninsular Gujarat are prone to chronic scarcity conditions while certain areas in South Gujarat are occasionally affected by floods.

For the purposes of soil characteristics, the State is divided into four district regions (a) Southern Gujarat Region covering Vadodara, Bharuch, Surat, Valsad and Dangs has rich and fertile deep black soils suitable for cotton, jowar, rice, wheat and other garden crops, and Dangs have dense forest, (b) Central Gujarat Region covering Kheda, Ahmedabad, Gandhinagar and part of Vadodara and Mehsana has the most fertile sandy loam soils. The Panchmahals and south-eastern part of Sabarkantha have medium black soils, (c) the Northern Gujarat Region covering Mehsana (except southern part), Sabarkantha (except south-eastern part), and Banaskantha have coarse shallow soils known as alluvial (sandy) soils; (d) the Saurashtra-Kutch region has alluvial sandy soils with patches of medium black soils, however, large part of Kutch has desert sandy saline soils.

Gujarat has 18532500 hectares of land of which net area sown was 96017 hectares of which 6817 hectares were cropped more than once. The main crops grown covered cereals 4245100, pulses 420500, fibre crops 1746700, oil-seeds 1796700 and fodder crops 820400 in hectares of land.

Gujarat had, according to Livestock Census of 1972, cattle and buffalo populations to the tune of 6457 thousands and 3468 thousands respectively as detailed below:
## Estimated Gross Value of Animal Husbandry Products in Gujarat

The estimated gross value of animal husbandry products in Gujarat is given below:

### (Rupees in lakh)

<table>
<thead>
<tr>
<th>Item</th>
<th>1960-61</th>
<th>1970-71</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk Production</td>
<td>3225</td>
<td>6527</td>
</tr>
<tr>
<td>Milk Products</td>
<td>3481</td>
<td>8326</td>
</tr>
<tr>
<td>Bones</td>
<td>13</td>
<td>22</td>
</tr>
<tr>
<td>Hides &amp; Skins</td>
<td>136</td>
<td>296</td>
</tr>
<tr>
<td>Meat &amp; Meat Products</td>
<td>642</td>
<td>1700</td>
</tr>
<tr>
<td>Wool</td>
<td>64</td>
<td>84</td>
</tr>
<tr>
<td>Goat Hair</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Poultry, Duck &amp; Eggs</td>
<td>134</td>
<td>380</td>
</tr>
<tr>
<td>Dung</td>
<td>760</td>
<td>1002</td>
</tr>
<tr>
<td>Increment in Stock</td>
<td>113</td>
<td>666</td>
</tr>
<tr>
<td>Other Products</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>8574</td>
<td>19008</td>
</tr>
</tbody>
</table>
Scope and approach: In the literature on marketing of agricultural produce, three distinct approaches are normally found—(i) the commodity approach, (ii) the institutional approach, and (iii) the functional approach. This study has been based on the first two approaches.

While the background and preliminary work was done earlier, the main field-work was completed between 1972 and 1976. Of course, information data since then have also been incorporated in the discussions as required by the new developments to make them self-contained.

The Thesis has been divided into nine chapters.

Chapter I deals with meaning and zoological classification, evolution, domestication in the World and India, states breeds of India and describes breeds of Gujarat of cattle and buffaloes giving salient features of Gujrat breeds.

Chapter II analyses demand determinants in view of agricultural operations, human nutritive diet, traction, oil-seed crushing, breeding, bye-products yielding and manure formation. Demand affecting factors such as land reform legislations, rise in the level of milk & its products, intensive farming, medium term agricultural finance, marginal operational holdings, natural calamities & epidemics and farm mechanization are analysed.

Chapter III is devoted in studying the population trends of cattle and buffaloes, role of agencies supplying them viz., cultivators, professional breeders, breeding farms, and traders and factors influencing the supply such as floods, famines, epidemics, feeds and fodder, housing, veterinary services and climate are studied.
Chapter IV sets out the concept, evolution and classification of markets.

Chapter V, VI, VII and VIII review the historical developments, organization & management, coverage, market layouts, amenities, seasonality, working hours, arrivals & sales, market functionaries, methods of sale, market charges & fees, inspection, payment and delivery, disputes & their settlement of each market viz., the village markets, the cattle fairs, the municipal markets and the regulated markets.

Chapter IX gives an overview of the marketing system of cattle and buffaloes, main malpractices and weaknesses of each cattle market to serve as a backdrop for major suggestions for integrated universal action to streamline and strengthen the existing categories of cattle and buffalo markets for raising their operational efficiency.

All throughout the work, charts, maps, diagrams and statistical data are given to convey relevant statements and observations.

Methodology: At the first stage, I made a pilot inquiry with the State-level Directorates of Agricultural Marketing and Animal Husbandry which showed that there were 9 cattle fairs, 3 municipal markets and 40 market committees enforcing regulation of cattle and buffaloes in Gujarat.

At the second stage, six separate questionnaires— one each for cattle fairs, municipal markets, and market committees, one for veterinary officers, one for village agriculturist and one for village parchayats-administration—were prepared.
At the third stage, stratified samples and units were selected both for issuance of questionnaires and personal visits for this study.

At the fourth stage, questionnaires were issued to 40 market committees, 10 cattle fairs, 2 municipal markets, 80 veterinary officers, 30 village panchayats administration and 150 village agriculturists in different parts of Gujarat.

At the fifth stage frequent visits to 15 market committees, 7 cattle fairs, 2 municipal markets and 15 village panchayats were made for on the spot case studies.

At the next stage personal interviews and group-meetings involving Director of Animal Husbandry and his office staff, District Animal Husbandry Officers, Officers in the Marketing Cell of Animal Husbandry Department, Veterinary Officers, Cattle Breeders, Farm Managers, Cattle-breeders, Gaushala workers, Market Committee Officials, Cattle Fair Authorities, Panchayat Administrators, Livestock traders & cultivators, Cattle buyers & sellers were held to know their views, & to cross examine them where contradictory and/or conflicting views were noticed.

In addition, the available published literature including the text books, Cattle Fairs and Markets Survey Reports, Bulletins on Animal Husbandry, Surveys, discussion and seminar reports on Animal Management, Annual Reports of the Animal Husbandry and Agricultural Marketing Departments, Market Committees were studied. Moreover, an access to some of the unpublished works, government circulars and resolutions and office records of the Directorates of Agricultural and Animal Husbandry, Veterinary officers, Market committees, municipalities, village panchayats
was secured. Most of the information and data had to be collected through field-work as this sphere had been unearthed by any researches in the past.

I am satisfied that I have been successful in locating and drawing upon most of the important unpublished & published material relevant to the subject of my study.

Academic objectivity was maintained in interpreting the facts. Where personal opinions and views were concerned, every care was taken to avoid giving undue weightage to individual or sectoral biases of the interviewees. Where evidence was very much in favour of particular points, it was thought fit to make generalizations.

The lists of (i) abbreviation used and (ii) maps, charts, diagrams follow this.

Acknowledgments: I sincerely express my deepest gratitude to Dr. V.R. Joshi, Professor of Commerce, who has provided me inspiring guidance, constructive criticism and valuable suggestions at all the stages of the work. I also acknowledge the help and inspiration given to me by Shri M.M. Shah, Prof. & Head, Commerce Department, Dr. A.B. Chauhan, Reader in Commerce and other staff members of the Commerce Department of Sardar Patel University.

I sincerely thank Dr. N.C. Buch, Ex-Director of Animal Husbandry, Gujarat State & Ex-Principal of Gujarat College of Veterinary Science and Animal Husbandry, Anand, Dr. T.M. Vaishnav, Director of Animal Husbandry, Gujarat State, Ahmedabad, Dr. P.R. Mudholkar, Dean, Faculty of Veterinary Science and
Animal Husbandry, Gujarat Agricultural University, Dr. A.D. Dave, Professor of Animal Husbandry and my brother-teachers of the Gujarat College of Veterinary Science & Animal Husbandry, Anand for providing me facilities and valuable suggestions in my work.

I offer special thanks to the staff attached to the Marketing Cell of the Department of Animal Husbandry, Ahmedabad and Registrar of Co-operative Societies & Director of Agricultural Marketing, Ahmedabad for readily providing valuable informations whenever I needed them.

I also acknowledge the Market Committees, Municipalities, Nagar Panchayats, Village Panchayats and those who have helped me directly or indirectly by giving valuable informations, views & opinions during the study.

I express my thanks to Shri M.M. Patel, Shri V.I. Patel & Shri D.P. Padsumbia for assisting me in my work.

Anand, November 4, 1978. (M.M. Desai)