SURVEY OF DAIRY ANIMAL MARKETS IN ANIMAL HUSBANDRY ZONES I & II OF ANDHRA PRADESH

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CERTIFICATE

Mr. PARA SRINIVASA RAO, has satisfactorily prosecuted the course of research and that the thesis entitled, **"SURVEY OF DAIRY ANIMAL MARKETS IN ANIMAL HUSBANDRY ZONES I & II OF ANDHRA PRADESH"** submitted, is the result of original research work and is of sufficiently high standard to warrant its presentation to the examination. I also certify that the thesis or part thereof has not been previously submitted by him for the degree of any University.

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DECLARATION

I, **Mr. PARA SRINIVASA RAO**, hereby declare that the thesis entitled **SURVEY OF DAIRY ANIMAL MARKETS IN ANIMAL HUSBANDRY ZONES I & II OF ANDHRA PRADESH**, submitted to Acharya N.G. Ranga Agricultural University for the degree of **MASTER OF VETERINARY SCIENCE**, is a result of the original research work done by me. I also declare that the thesis or part thereof has not been published earlier elsewhere in any manner.

Date: December, 1997.

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CERTIFICATE

This is to certify that the thesis entitled "**SURVEY OF DAIRY ANIMAL MARKETS IN ANIMAL HUSBANDRY ZONES I & II OF ANDHRA PRADESH**" submitted in partial fulfilment of the requirements for the degree of **MASTER OF VETERINARY SCIENCE (Dairy Production)** of the Acharya N.G. Ranga Agricultural University, Hyderabad is a record of the bonafide research work carried out by **Mr. PARA SRINIVASA RAO** under my guidance and supervision. The subject of the thesis has been approved by the student's Advisory Committee.

No part of the thesis has been submitted for any other degree or diploma. The published part has been fully acknowledged. All assistance and help received during the course of the investigations have been duly acknowledged by author of the thesis.

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ABSTRACT

A study was under taken to enumerate the dairy animal markets in the six districts of Animal Husbandry Zones I and II of Andhra Pradesh. Information was gathered from all 52 animal markets available in the study area. The required data was collected by personally visiting the area on the days of market and information was gathered through a questionaire. The data obtained was tabulated, analysed and conclusions were drawn.

It was observed that majority of the dairy animal markets are regulated i.e., controlled by either Agricultural marketing committees or local bodies. Medium size markets are more in number than small and large markets. Cattle fairs are mostly held at weekly intervals and farmers are the major assembling agents of animals in the market. The percentage of animals sold over arrivals is more in unregulated markets than the regulated markets.

Milch buffaloes constituted the major group of animals and their price is mainly dependent on the milk yield per day. Animals which are in first lactation and yielding more milk have the potential to fetch maximum price. The animals are sold principally by mutual agreement. Brokerage and feed and labour expenditure are the major items of cost in animal marketing.

The major problems identified were difficulty in introdution of auction method and involvement of brokers in the animal trade. Based on the observations it is suggested that there should be separate markets with all facilities for the dairy animal markets regulated by an appropriate authority.

INTRODUCTION

CHAPTER I

INTRODUCTION

India possess the largest Livestock wealth in the world with a cattle population of 196.0 million heads and buffalo population of 80.1 million heads (FAO, 1996). The Government of India and all the State Governments have taken up several Livestock improvement schemes to produce high yielding Livestock and increase the total productivity of the Livestock animals. Livestock development starts with the marketing as it provides the necessary incentives to the producers so as to adopt the new technologies in Animal Husbandry. The marketing of cattle and cattle produce is important as it constitutes a big business in Animal Husbandry and Dairying sector.

Planning and developing cattle markets has not given serious thought in the past and is there fore neglected. However, on the recommendations of Royal commission on Agriculture in 1928 and the Banking enquiry committee in 1931, Government of India has set up a central organisation known as the Agricultural Marketing Advisor to the Government of India in 1935. Later on this organisation was renamed as Director of Marketing and Inspection (Dhume, 1985). The Directorate of Marketing and Inspection, made the pioneer efforts for the regulation of markets dealing in Agricultural, Livestock and Livestock produce. However till date much information is not available on Livestock markets and even today the marketing of cattle is not generally done on systematic lines in India.

Spiralling needs of growing population of India resulted in augmentation of milk production and there by the demand for dairy animals is increasing day by day. As a result cattle trade is expanding every year. Efficient marketing system is essential to sustain the acclerated dairy development.

Marketing efficiency to a large extent depends upon the organisational structure of the market and its conduct. Market structure depends upon the volume of the trade in a particular market. Hence there is a obvious need for research in various issues of dairy animal marketing. Andhra Pradesh, one of the largest milk producing States in India possess 10.95 million cattle and 9.1 million buffaloes (Directorate of Economics and Statistics, AP 1993). Andhra Pradesh is devided into six Animal Husbandry Zones. The Animal Husbandry Zones I and II comprising Srikakulam, Vizianagaram, Visakhapatnam, East Godavari, West Godavari and Krishna districts are rich in dairy animals and have the good potential for dairy animal marketing. The exact number of markets and information about the functioning of these markets is not available. Hence the present study was undertaken to enumerate the cattle markets in Animal Husbandry Zones I and II of Andhra Pradesh and to study the prevailing practices in the dairy animal markets so as to suggest measures for their improvement.

REVIEW OF LITERATURE

CHAPTER II

REVIEW OF LITERATURE

Research on marketing of dairy animals and its products received very little attention in India and this aspect was not given much attention even by the researchers abroad. The available literature relating to dairy animal marketing has been reviewed in this chapter.

2.1. DAIRY ANIMAL MARKETS - GENERAL

Jayaraman (1961) analysed the cattle market performance in India and high lighted the need for regulation of these markets. He identified various defects in the marketing system existing at that time. The defects identified were (1) The malpractices adopted by the buyers and intermediaries in the form of trade- tricks and ingenious means in order to force the owners to part with their animals at lower prices. (2) The excessive market charges payable by the buyers and sellers which result in non- remunerative prices received by the breeders in the markets and (3) Total lack of amenities like provision of shelter, water troughs, light etc., both for human and animals resulting in an extra expenditure to the buyers and lower return to the sellers.

Sosmick (1961) gave a theoretical frame work for analysing market structure, conduct and performance of livestock markets. According to him the market performance well depend on the quality a buyer would buy from a seller, market price, transportation cost, and profit of the firms operating on the market.

Central council of Gosamvardhana (1967) in its report on cattle keeping in India discussed the market functionaries and itinerant traders. The persons attending the cattle fairs were grouped as sellers, buyers and brokers.

Ono (1969) studied the organisation of cattle marketing in Japan and discussed marketing channels. He observed that local cattle dealers, particularly those who brought, cattle either directly from farmers or at auctions, played an important role in cattle marketing.

Singh and Patel (1982) studied the four common marketing channels of buffalo trade in Haryana. The four channels were I. Channel comprising producer-consumer is the most common marketing channel in bufallo trade. II Channel which consists of producer-trader-consumer and in this channel traders act as intermediaries and earn profit which ultimately reduces the producers share. III Channel includes producer-village agent-trader-consumer and IV Channel formed by producer-local trader-trader in consuming area and consumer.

A study was conducted for assessing the functioning of the regulated cattle markets in Maharashtra by Dhume (1985). According to him the cattle markets can be grouped in to four categories based on the legislative provision viz, (1) Cattle markets under Agricultural Produce Market Committees under Agricultural Produce Market Acts. (2) Cattle markets under Gram Panchayats or Municipalities under the local self-government acts. (3) Cattle markets under fair acts and (4) Private cattle markets controlled by private parties.

Arora and Pandey (1987) Examined the structure and conduct of cattle markets in Haryana state. They classified all the markets into three categories viz, small, medium and large based on the amount of income received from fairs.

Gopala Rao and Iqbaluddin (1988) broadly categorised the livestock markets in India into 1. markets controlled by local bodies namely panchayats, Municipalities, Corporations, 2. markets controlled by fair committees, under the supervision of controller of fairs, 3, markets controlled by the Agricultural Produce

Market Committees (APMc"s) called regulated markets and 4. markets owned privately where livestock assemble in private landed property or enclosures.

Mondal and Pandey (1993) studied the milch buffaloes markets in Haryana. They classified the markets by the cumulative total method in to three categories viz. small, medium and large markets based on amount of income received from cattle fairs during the last three years. They further observed that in Haryana, there are four marketing channels viz, 1. producer - consumer/final buyer 2. producer-trader-consumer/finalbuyer 3.producer-village agent- trader/consumer/final buyer and 4.producer-local trader-trader in consuming area-consumer/ final buyer, prevalent for the buffalo trade.

Varghese and Sharma (1996) observed that the four tier cattle fairs viz, State level, Municipality level, Panchayat samiti level and gram Panchayat level are prevalent in Rajastan state. Which provided lot of opportunities to the animal breeders for buying and selling of animals. They reported that the cattle fairs and localised buyer-seller agreements from major means of marketing for cattle and buffaloes.

2.2. DAIRY ANIMAL MARKETS IN DIFFERENT STATES

Rajkumar grover and Singh (1983) reported that the nature of cattle marketing in Haryana and observed that marketing of cattle and buffaloes constitute a big business for farmers and traders. They classified all the sixty six cattle markets of the state as small, medium and large on the basis of annual revenue collected.

According to the Director of Agricultural Marketing, Pune. There were 292 livestock markets in Maharashtra during the year 1979 and out of these, 174 markets are regulated. These are controlled by 93 Agricultural Produce Market Committees, Dhume (1985).

Gaikwod (1985) reported that in Maharashtra, there were 230 principal markets of which 170 markets were regulated. They further observed that there were 138 important weekly cattle markets.

Gopala Rao and Iqbaluddin (1988) opined that there would be more than 2000 markets in India to transact livestock. They recorded that Delhi had four livestock markets all of which are unregulated, while Gujarat and Rajasthan had 16 and 3 regulated markets, respectively. They further reported that there were 2 regulated and 11 unregulated markets in West Bengal.

Verma *et al* (1989) studied the existing situation of important cattle markets in the state of Rajasthan. The study was conducted in markets organised by State Department of Aimal Husbandry. These markets were classified in to four categories based on type of cattle breeds brought for sale. Growth rates in total arrivals in Haryana breed cattle markets like Gomatisagar and Jasvant areas, were positive but negative in Shivratri, Gogameri and Chandarbhaga markets. The linear trends for maximum as well as minimum prices in livestock markets of Tharparker and Kankrez breeds have shown increasing trends. Maximum prices of all kinds of livestock in Nagouri breed as well as Haryana breed markets were increased significantly in every year.

Kareemulla and Srinivasan (1992) observed that there were 13 weekly shandies and 15 annual fairs for cattle marketing in Chittoor district of Andhra Pradesh.

Talukdar and Singh (1994) examined the cattle market structure in Baridua cattle market in Meghalaya. They observed that the middle men formed several distinct channels for movement of the cattle from rearers to the ultimate users and the prices in the market were controlled by the sellers.

Pandey *et al* (1996) while analysing the structure of cattle fairs in Haryana, noted that mostly the cattle fairs were fixed as for Vikrami calendar months and their periodicity included both of short and long duration i.e., 5-10 days. The number of cattle fairs held during the period of study in Hissar, Rohtak, Rewori and Karnal circles were 121, 66, 43, and 39 respectively. Amongst the four circles, Karnal circle had the highest number of cattle fairs followed by Rewari, Rohtak and Hissar.

Rasane *et al* (1996) studied the marketing of buffaloes and cross bred cows in Dhule market in Maharashtra state. They observed that there were 145 traders and 18 authorised dalals involved in the live stock trade in Dhule market. They concluded that the arrivals and disposals of cows were low during the period from April to July and increasing during August to December. Arrivals of cross bred cows is quite high during February, March and also the arrivals and disposals of buffaloes were quite high during January, July and August as compared to other months of the year.

Varghese and Sharma (1996) reported the cattle breeders from within the state and outside the state participate in the cattle fairs organised annually in different parts of Rajasthan state. The periods of these cattle fairs were fixed according to the dates of the samvat calendar and is spread over the year with the minimum over lapping in dates, so as to help breeders to participate in as many fairs as possible. The periods of extreme summer (June) and extreme winter (Dec. to Jan.) will not appear in the calendar of these fairs.

2.3 FACTORS AFFECTING MARKET PRICE OF ANIMALS

2.3.1 Season

Rachlis (1952) studied the structure of livestock marketing in Canada and Concluded that the marketing of calves had distinct seasonal pattern. He observed that the uprising begins in march, reaches peak at the end of April and by August it shortly drops off.

Minhas (1966) Observed that the prices of buffaloes and cows were 2 and 11% higher, respectively, in spring season over the autumn season.

Singh and Patel (1981) conducted an economic study on buffalo price structure in Haryana during 1965-75. They observed that buffalo prices were found to be maximum in the month of July and the prices decreased persistently in the successive months. Buffalo prices again raise in the months of February and March and the lowest prices were recorded in the month of April.

Singh and Patel (1982) studied export of buffalo from Haryana with the help of time series data for the period between 1970 to 1978. They observed that the exports are maximum in the month of August and minimum in the month of July. The prices were observed to be above normal in the months of January, August, October, November and December.

Arora and Pandey (1984) studied the price variations in cattle markets of Haryana. Maximum price of bullocks existed in rainy season than summer and winter season because of their great demand for kharif operations.

Mishra and Nayak (1991) studied the factors which affect the bullock prices in the three leading cattle markets of Cuttack and Puri districts in Orissa during 1989-90. Their findings revealed that the price of bullocks remained high in summer followed by rainy season and winter.

2.3.2 Breed and other characteristics

Sidhu (1960) studied the economics of cattle and buffalo trade in Punjab. His study revealed that factors like breed, performance, colour and temperament of the animal affected the prices of dairy animals.

Sidhu (1965) observed that on an average the Murrah breed of buffalo fetched about 5 to 13 percent higher price than Nili and non descript types respectively. General appearance of the milch animals and other virtues like thin skin, short and smooth horns, wide hip, long tail with a good switch, large udder, zig zag milk vein, uniform teats of convenient size were found to had possitive effect on the prices. Cool and calm temperament of the dairy animals also had an influence on their prices.

Minhas (1966) in a study on price variations in cattle and buffalo markets in Punjab reported that factors like breed, age, colour, temperament, sex of calf-at-heal, pregnancy etc., contribute to costing of animal.

McIntosh and Hawkins (1971) used dummy variable technique in cattle price analysis. the study sought to identify and measure the effects of certain pertinent variables in the marketing system. Cattle prices in different market-terminals and auctions were compared. Among the variables hypothesized affecting cattle prices are class, grade and weight were the most important for both feeder and slaughter cattle. Low prices were associated with the presence of horns and also with a full condition of body.

Arora and Pandey (1984) analysed the factors influencing price variations in bullocks. Rajasthani bullocks were priced higher than that of Haryana. White coloured bullocks fetched more price than mixed coloured bullocks. The net effect of Rajasthani breed on Price had turned out to be positive and a Price premium of

Rs. 168 Rs. 208 Rs.189 and Rs. 197 existed over the average price of Haryana breed in small, medium, large and overall markets, respectively.

Kareemulla and Srinivasan (1992) reported that the Hallikar breed bullocks were paid higher prices than that of cross bred and non-Descript bullocks.

Price of local cow was the lowest and highest for exotic cross bred for the same level of productivity in Baridua cattle market of Meghalaya, Talukdar (1994). He observed that draught cattle were marketed based on their number of teeth. The prices of regional breeds were the lowest where as the Haryana and Tharparker breed fetched the highest price.

2.3.3 Milk yield

Sidhu (1965) analysed the various factors influencing the cattle and buffalo prices in Punjab. In his study milk yield was found to have the greatest bearing on prices. Freshly calved animals were found fetching higher prices. He observed that prices of buffalo increased up to third lactation and slight fall was observed in the successive lactations which became more prominent in fifth and sixth lactations.

Singh and Patel (1981) studied variations in the price of murrah buffaloes in Haryana over a period of 12 years extending from 1964 to 1976. They observed that milk yield was the single most important factor influencing the price of buffaloes followed by stage of lactation and order of lactation.

Gangwor (1985) studied the factors affecting the price of milch buffaloes. Milk yield had more affect on buffalo prices than order of lactation. He observed that buffalo price increased by Rs. 106.80 for every one litre increase in the milk yield. He further noticied that if the order of lactation is increased by one, the buffalo price was declined by Rs.25.89. During early stage of lactation, the buffalo prices were higher.

Kareemulla and Srinivasan (1992) conducted an empherical analysis of cattle pricing in Andhra Pradesh. Single calved cows and she buffaloes received highest prices and the price is inversely correlated with the number of lactations. Milk yield is the significant variable that influences the price of milch buffaloes. They observed that one litre of additional milk would increase the price of milch buffalo by Rs. 266.

Mondal and Pandey (1993[a]) studied the factors influencing the market price of lactating murrah buffaloes in Haryana. Among the quantitative characters, milk yield made the highest contribution, followed by stage and order of lactations. Milk yield, order of lactations and stage of lactations contributed about 47%, 3% and 7% respectively to the price of buffaloes. It was revealed that a freshly calved murrah buffalo of 2nd lactation yielding about 12 litres of milk a day had the potential to fetch the maximum market price. Further more, the market prices of lactating murrah buffaloes were greatly affected by the milk yield as compared to the stage and order of lactations. The market price of lactating murrah buffaloes increased by Rs. 769 with the increase in milk yield by one litre but declined by Rs. 135 and Rs. 199 with lactation order and the stage of lactation respectively.

Patil *et al* (1996) observed that there were positive relationships between market price of cows with that of stage and order of lactation and milk yield. Overall maximum market price of lactating cows (Rs. 6243) was observed in cows whose milk yield is above six litres per day.

Pandey *et al* (1996) studied the structure of cattle fairs in Haryana. Milch cows and buffaloes were priced on the basis of milk yield per day. While heifers were marketed and priced on the basis of their age, the price of pregnant cows, buffaloes and some of their heifers were based on stage of pregnancy and past lactation or Dam's milk yield. Draught cattle and buffaloes were priced on the basis of their number of teeth.

Singh *et al* (1996) studied the factors affecting market price of lactating buffaloes in cattle fairs of Punjab. It was found that, among the quantitative characters milk yield made the greatest contribution towards the market price of buffaloes followed by stage and order of lactation. A freshly calved buffalo of 3rd lactation and yielding about 14 litres of milk a day had the potential to fetch the maximum market price.

2.3.4 Age

Raut and Singh (1974) analysed the factors influencing price of bovine stock. They opined that age was the only quantitative character in bullocks which could be utilized to study the pricing of bullocks. It was further observed that bullock fetched maximum price at the age of 45 months.

Rathod *et al* (1978) performed an econometric analysis of price variation in cattle market by using three different models. It was noticed that bullocks of 5 years age received maximum price.

Kareemulla and Srinivasan (1992) conducted an emphirical analysis of cattle pricing in chittoor district of Andhra Pradesh and found the price of bullocks to be highly correlated with their age. Hallikar breed bullocks in the age group of 41/2 -7 years were paid the highest price than that of cross bred or non descript.

2.4 MARKETING COSTS AND MARGINS

Sidhu and Johl (1966) studied the transportation cost of trade cattle and buffaloes. Their study revealed that the transportation cost per animal for long distances was lowest by rail transport, where as for short distances the transportation cost by road was cheaper than that of rail transport.

Singh and Zurmati (1978) studied the price spread and marketing cost. They observed that the share of grower to the consumer's rupee spent was very small and that of the retailer, in particular is very large.

Patil *et al* (1979) studied the price spread of livestock in Dhule market of Maharashtra state. They worked out the average total cost of marketing per cow as RS. 383.94 and the average marketing cost per buffalo was worked out to be RS. 405.39. The cost of transportation which was an important item of marketing cost accounted for 71.86% of the total marketing cost. The other important items of marketing cost were the feeds and fodder (15.74%) followed by pocket expenditure of traders (7.54%), attendance charges (4.08%) etc.

Singh and Patel (1982) analysed the costs and margins in marketing of buffaloes in Haryana. They found that the buffalo sellers spend maximum amount on the feeding of buffaloes prior to sale followed by the brokerage charges. The brokerage charges can be eliminated by direct transaction between sellers and buyers. For buyers the major cost item was the transportation cost which accounted about 50% of the total marketing cost.

Arora and Pandey (1992) studied the cattle marketing costs and margins using data collected from three markets from each of small, medium and large categories of markets in Hissar, Sirsa and Bhiwari districts in Haryana state. The producer /seller earned RS. 65 more from cattle trade in large markets as compared to small markets, but their share in the consumer price was lower (68%) in large markets than in small markets (73%) because the final consumer price was higher in large markets.

Mondal and Pandey (1993) analysed the market performance of Dairy animal markets of Jind and Rohtak districts of Haryana. The net share of producer in the consumer's price of murrah buffalo was found to be about 88%. Buffalo seller had to incur the maximum amount on feeds and labour cost before the sale of buffaloes while for buyers, the major cost item pertained to market charges. They concluded that small markets were relatively more efficient in the buffalo trade as compared to other.

Autkar *et al* (1996) studied the price spread of murrah buffaloes in Akhola district. In their study they observed that per buffalo producer cost was found to be 5,778; which constituted 3.49% share in consumer rupee. Transport charges formed the major expenses incurred by the whole salers and was found to be rupees 1444.44 per buffalo, with a share of 15.47% in consumer rupee. The whole saler profit margin was worked out to be RS. 1360.37 per buffalo with a share of 14.95% in consumer rupee.

Pandey *et al* (1996) studied the trends in cattle fair incomes in Haryana. The over all percentage expenditure incurred was about 10% of the total income earned, with a range of 6-18%. They observed that the cattle fair income increased at the annual rate of about 6% while that of expenditure by 7%.

2.5 INFRA STRUCTURAL FACILITIES

Central council of gosamvardhana (1967) in its report on cattle keeping in India, suggested that special attention is necessary for providing suitable water arrangements for animals and the general sanitation in cattle markets is needed. The medical examination of all the animals entering in to the fair was suggested. The need for providing sufficient shade and shelter for animals and men during inclement weather, proper layout of the fair site to have a check on the entry and exit of the animals was highlighted.

Dhume (1985) studied the common facilities required for the management of grain and cattle market yards and specific facilities required by the cattle markets. Amongst the common facilities required are platforms, drinking water facilities, roads, premisses for commission agents and traders, lighting arrangements, bathrooms, rest houses, cart parks, sale halls, sanitary blocks, communication facilities, fire extinguishers and cooperative societies. The specific facilities in the cattle markets suggested included facilities for housing animals, animal sheds, water troughs for animals, veterinary check posts, shady trees in the yards, fencing for the yards, sanitary arrangements and arrangements for sale of livestock feed in the markets.

Gaikwod (1985) while studying the layout and plans of cattle markets in Maharashtra observed that out of eight cattle sheds only 4 cattle sheds were 20m x 6m of size, another 4 cattle sheds were of 30m x 6m size with a capacity for 20 animals and 30 animals in each shed. He correlated the available facilities with those recommended by BIS. The BIS had included the general requirements and amenities like the cattle sheds, water trough's for animals, platform for washing animals, gowdown for storage of fodder and feeds, milking sheds, place for veterinary services, market office, chowkidars post, fire extinguishers and compost pit. The common facilities required are urinals, laterins, well water, canteen, rest house for sellers and buyers, street lights, refuge bins, first aid equipments etc.

Varghese and Sharma (1996) studied the retrospects of cattle fairs and prospects of livestock markets in Rajasthan. The facilities being provided by the Department of Animal Husbandry in the State level cattle fairs included 1. marketing sites /temporary market 2. light and water 3. veterinary facilities 4. sanitation 5. recreation and cultural programmes 6. law and order 7. special transport facilities and 8. incentives and awards for best animals.

2.6 CONSTRAINTS IN MARKETING OF DAIRY ANIMALS

Dhume (1985) studied the problems faced by the Agricultural produce Market Committees to manage the cattle markets. They identified two major problems faced by the committees to manage the cattle markets. They were 1 inadequate land and 2 lack of funds. The consequencies arising out of lack of funds were non- construction of compound wall, absence of internal roads in the market yard, uneven levelling of the market yard, absence of cattle sheds, improper drainage, absence of farmers rest house and lack of water arrangement for the cattle. The problems confronted in providing sufficient space are inadequate land, absence of land exclusively for the establishment of cattle markets. Delay in allotment of land by Government/ local bodies, inadequate land; problems in the acquisition of land from the Government , local bodies as well as private parties and transportation problems etc.

Gopala Rao and Iqbaluddin (1988) studied the main constraints in marketing livestock. The constraints identified included involvement of too many agencies in exercising control over livestock markets, inadequate attention paid to livestock as food grains and Livestock are sold in a common place, non payment of sale proceeds, marketing of stolen animals and variation in collection of fee from market to market etc.

Gopala Rao (1991) reported the problems encountered in marketing of livestock and livestock products. The main problems of livestock markets in villages are inadequacy of place for assembling of live animals and conductance of markets at long intervals.

Patel (1996) studied the problems faced by the different market functionaries during buffalo transactions. The study revealed that the small markets were relatively more efficient in buffalo trading. High registration fee, sale tax and transportation cost, lack of boarding and lodging facilities, adoption of malpractices, presence of unauthorized brokers in the market, lack of security, feeds, water and health care in the buffalo markets were the major problems faced by the major functionaries.

MATERIALS AND METHODS

CHAPTER III

MATERIALS AND METHODS

3.1 AREA OF STUDY

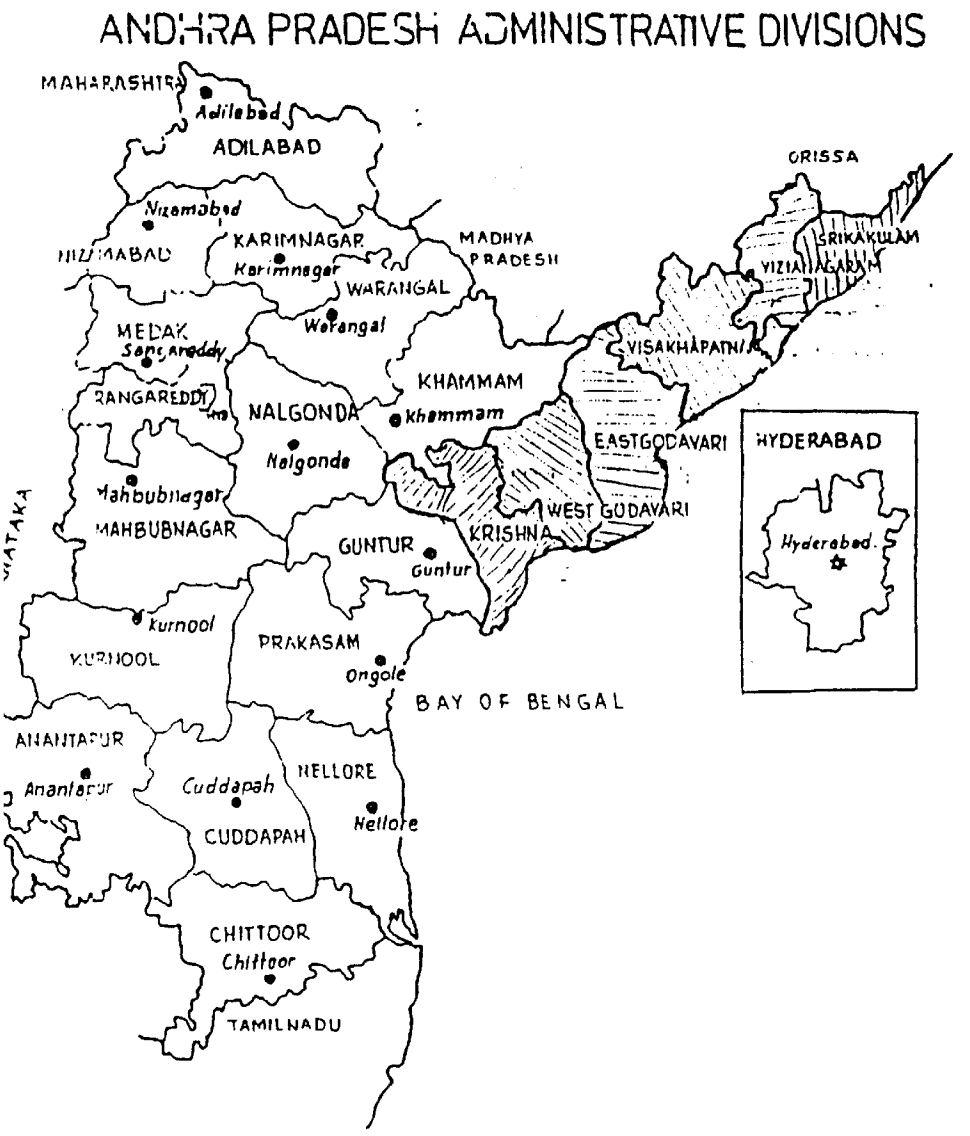
Andhra Pradesh State is divided into six Animal Husbandry zones. The present study on the survey of Dairy animal markets pertained to Animal Husbandry zones I and II. Zone I comprises of Srikakulam, Vizianagaram and Visakhapatnam districts, while East Godavari, West Godavari and Krishna districts constitutes the II zone (Map 1).

3.2 IDENTIFICATION OF DAIRY ANIMAL MARKETS

Statistical information on dairy animal population of six districts was collected from the available statistical abstracts of Directorate of Economics and Statistics, Andhra Pradesh. First hand information regarding the location of Dairy animal markets in the six districts was obtained from Animal Husbandry department and Directorate of Economics and Statistics, Government of Andhra Pradesh. A total of 52 existing markets were identified and information was collected by visiting these markets.

3.3 COLLECTION OF DATA

Data pertaining to the markets and animals being marketed was collected by personal visits to the markets on the respective days of market. A detailed questionaire was prepared taking in to consideration of objectives of the study. Information was collected by interview method through questionaire (Appendix I) from the market management authorities, farmers and traders involved in animal transactions and the local Veterinary Assistant Surgeon of Animal Husbandry Department.



MAP 1: MAP SHOWING SELECTED DISTRICTS OF ANDHRA PRADESH

3.4 PERIOD OF STUDY

The present study is based on the data collected during the period from December, 1996 to July 1997.

3.5 PARAMETERS STUDIED

3.5.1 Category of market

Markets registered under either Agricultural Produce Market act or local self Government act; Gram Panchayats/Municipalities were considered as regulated markets in the present study and while those owned by private individuals were considered as unregulated markets.

3.5.2 Periodicity and day of market

Information on the periodicity of the market i.e. whether weekly or biweekly and day(s) of market was recorded.

3.5.3 Assembling agencies

Agencies involved in assembling the animals at the markets i.e. farmers, village merchants, brokers/traders, whole salers and their contribution to assembling of animals were recorded.

3.5.4 Number of animals marketed

The average number of dairy animals being marketed in each market on their respective days of market were recorded for different categories of buffaloes and cattle.

3.5.5 Infrastructural facilities

Details regarding infrastructural facilities like total area, sheds, roads, fencing, loading/unloading dock, weigh bridge, water/feed troughs, veterinary facilities etc. available in the markets were collected.

3.5.6 Market size and animals marketed

The number of animals being brought to the market per day, number of animals sold and the category of animals (Milch, dry heifers, calves, draught, slaughter) were recorded. Based on the arrivals per day, the markets were categorised in to small (less than 100 animals/day) medium (101-250 animals/day) and large (above 250 animals/day) markets.

3.5.7 Registration and marketing costs

Registration fee, feeding and labour charges, transportation costs, brokerage and market fees in various markets were recorded.

3.5.8 Method of sale

Information regarding the method of sale i.e. either by mutual agreement or through brokers was recorded.

3.5.9 Dairy animal prices and factors influencing them

The maximum and minimum prices for various categories of animals were recorded. Factors that influenced the price of animals such as breed, lactation, age, milk yield, physical appearance etc. were Identified.

3.5.10 Problems faced in marketing

Difficulties faced in the marketing of animals such as insufficient infrastructural facilities, non-cooperation of traders, lack of transport facilities for dispatch of animals to distant places were Identified.

3.6 STATISTICAL ANALYSIS

Data on the maximum and minimum prices of each of the categories of dairy animals in various markets of each district were pooled. District wise mean values for buffaloes and cattle were calculated separately. District wise comparison of minimum and maximum prices for various categories of animals was done by one way analysis of variance technique (ANOVA) (Snedecor and Cochran, 1994).

X^2 test using 2 X 6 contingency table was employeed to test the significant differences if any between the district wise means for the number of graded murrah and Non discript buffaloes and local crossbred cattle being marketed per day as per the methods given by Snedecor and Cochran (1994) and Conclusions were drawn accordingly.

RESULTS

CHAPTER IV

RESULTS

Information available on dairy animal markets in Andhra Pradesh is scanty. So an attempt has been made to in this study to enumerate the dairy animal markets in the Animal Husbandry zones I and II of Andhra Pradesh. The data obtained in the study was tabulated and analysed. The results are presented in this chapter.

4.1 STATISTICAL INFORMATION ON MARKETS

Statistics related to dairy animal population in the area of study was collected from Directorate of Economics and Statistics, Andhra Pradesh and they are presented in Table 1. From the data it is observed that districts had the highest number of buffaloes in the districts study but it had the lowest cattle population. Contrary to this, Srikakulam district had the highest cattle population and lowest buffaloes population. Visakhapatnam district has more or less equal number of cattle and buffaloes.

Information pertaining to the controlling authorities over the dairy animal markets in the two zones are presented in Table 2. Out of the total 52 markets 19 markets were under panchayats, 15 under Agricultural market committees, 9 under municipality and 9 were controlled by private individuals. Srikakulam and East Godavari districts had the higher number of markets under the control of Agricultural market committees and Visakhapatnam district, has the least number of markets governed by Agricultural market committees.

4.2 CLASSIFICATION OF MARKETS

In the present study markets were classified in to regulated and unregulated markets basing on the controlling agency. Those markets which are governed by

le 1: Dairy animal population in the study area

District	Cattle				Buffaloes			
	Males over 3 years	Females over 3 years	Young stock	Total	Males over 3 years	Females over 3 years	Young stock	Total
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Srikakulam	2,11,726	1,94,162	1,54,349	5,60,237	98,494	63,595	42,306	2,04,390
Vizianagaram	1,98,507	1,28,373	1,01,963	4,28,843	68,288	1,11,288	74,475	2,54,051
Visakhapatnam	2,30,274	1,20,252	1,08,444	4,58,970	73,404	2,26,628	1,21,654	4,21,686
East Godavari	1,38,608	1,02,028	91,412	3,32,048	11,493	2,69,628	1,81,807	4,62,928
West Godavari	1,08,526	74,370	65,953	2,48,849	5,917	2,67,937	1,94,239	4,68,093
Krishna	85,199	54,552	43,532	1,83,283	13,124	3,89,462	2,98,647	7,01,233

* Source: Directorate of Economics and Statistics, Andhra Pradesh (1993).

ıble 2: Controlling authorities on dairy animal markets.

l. Districts ɔ.	Number of markets controlled by				
	Agricultural Market Committees	Municipality	Panchayat	Private	Total
SRIKAKULAM	4	2	6	3	15
VIZIANAGARAM	2	1	4	2	9
VISAKHAPATNAM	1	1	1	2	5
EAST GODAVARI	4	2	4	-	10
WEST GODAVARI	2	1	2	2	7
KRISHNA	2	2	2	-	6
GRAND TOTAL:	15	9	19	9	52

Agricultural market committees or local bodies were considered as regulated markets and those which are controlled by private individuals were classified under unregulated markets. Out of the total 52 markets studied 43 markets were regulated and 9 were unregulated markets.

4.3 MARKET SIZE

The markets were further classified in to small (less than 100 animals/day), medium (101 to 250 animals/day) and large markets (above 250 animals/day) under each district based on the number of animals being marketed per day and the data was given in (Table 3). Out of total 43 regulated markets in the six districts, majority of them (16) were medium sized, while large and small markets numbered 14 and 13 respectively. Under unregulated markets, small sized markets are more in number (7). There are only one market each under medium and large category of unregulated markets. In East Godavari and Krishna district unregulated markets were not existing.

4.4 PERIODICITY OF MARKETING

According to periodicity of market the individual markets were classified in to weekly and biweekly markets and the number was consolidated for each district and given in Table 4. Details regarding periodicity and day (s) of market for each individual market are given in appendix II. Majority of the markets, i.e. 41 out of 52 were weekly held while the remaining 11 were held biweekly. Among the weekly regulated markets medium and small size markets dominated over large markets. Out of the 11 biweekly markets 6 were large, 4 medium and 1 was a small market respectively. Out of the 11 biweekly markets nine were regulated while the remaining two were unregulated.

Table 3: Classification of markets

Districts	REGULATED				UNREGULATED				Grand Total
	Small	Medium	Large	Total	Small	Medium	Large	Total	
1. SRIKAKULAM	4	5	3	12	2	-	1	3	15
2. VIZIANAGARM	1	3	3	7	1	1	-	2	9
3. VISAKHAPATNAM	2	1	-	3	2	-	-	2	5
4. EAST GODAVARI	3	3	4	10	-	-	-	-	10
5. WEST GODAVARI	1	2	2	5	2	-	-	2	7
6. KRISHNA	2	2	2	6	-	-	-	-	6
Grand total	13	16	14	43	7	1	1	9	52

Table 4: Periodicity of marketing

Districts	REGULATED							UNREGULATED							
	Small		Medium		Large			Small		Medium		Large			
	weekly	biweekly	weekly	biweekly	weekly	biweekly	Total	weekly	biweekly	weekly	biweekly	weekly	biweekly	Total	total
1. SRIKAKULAM	3	1	4	1	2	1	12	2	-	-	-	-	1	3	15
2. VIZIANAGARAM	1	-	3	-	2	1	7	1	-	-	1	-	-	2	9
3. VISAKHAPATNAM	2	-	-	1	-	-	3	2	-	-	-	-	-	2	5
4. EAST GODAVARI	3	-	2	1	3	1	10	-	-	-	-	-	-	-	10
5. WEST GODAVARI	1	-	2	-	1	1	5	2	-	-	-	-	-	2	7
6. KRISHNA	2	-	2	-	1	1	6	-	-	-	-	-	-	-	6
Grand Total:	12	1	13	3	9	5	43	7	-	-	1	-	1	9	52

4.5 ASSEMBLING AGENCIES

Various agencies were involved in assembling animals in the markets. They included farmers, village merchants, brokers/traders and whole salers. The contribution by various assembling agencies for a given market were pooled up in each district for regulated and unregulated markets and are furnished in Table 5. Farmers formed the major assembling agency in both regulated (36% to 56.25%) and unregulated (35% to 75%). Whole salers are contributing the least in assembling the animals both in regulated and unregulated markets. Village merchants purchase animals from the villages and assemble them in the markets. The percentage of animals brought by village merchants varied between 10 and 31.25 % among the districts. Brokers/traders who stay in the markets purchase the animals in the markets it self and assemble them as their group. The percentage of animals assembled by this group ranged between 10 per cent and 50 per cent.

4.6 NUMBER OF ARRIVALS AND SALES OF ANIMALS

District wise number of arrivals and sales of animals per day are presented in table 6. Under regulated markets highest arrival of animals were recorded in East Godavari district (7237) and least was observed in Visakhapatnam (2488) district. The highest percentage sale of animals was recorded in regulated markets of west Godavari district (64.51%) and least was noticed in Visakhapatnam district (54.01%).

The number of animals arrived in unregulated markets are low in comparison to regulated markets. In general the percentage of animals sold is higher in unregulated markets than regulated markets in all the districts. Among the unregulated markets the highest percentage of sales was seen in Visakhapatnam district (73.41%) and least was noticed in Vizianagaram district (66.87%).

ible 5: Assembling agencies in dairy animal markets

Agency	Regulated						Unregulated					
	Srikakulam	Vizianagaram	Visakhapatnam	East Godavari	West Godavari	Krishna	Srikakulam	Vizianagaram	Visakhapatnam	East Godavari	West Godavari	Krishna
Farmers:												
No.of animals assembled	1025	1150	450	1650	1250	1800	350	300	250	-	375	-
% contribution	41.00	47.92	36.00	40.24	53.19	56.25	35.00	37.50	50.00	-	75.00	-
Village merchants:												
No.of animals assembled	750	400	125	1200	475	650	250	250	125	-	75	-
% contribution	30.00	16.67	10.00	29.27	20.21	20.31	25.00	31.25	25.00	-	15.00	-
Brokers/Traders:												
No.of animals assembled	425	500	625	650	625	750	225	175	75	-	50	-
% contribution	17.0	20.83	50.00	15.85	26.60	23.44	22.50	21.88	15.00	-	10.00	-
Wholesaler:												
No.of animals assembled	300	350	50	600	-	-	175	75	50	-	-	-
% contribution	12.00	14.58	4.00	14.63	-	-	17.50	9.37	10.00	-	-	-
Total animals assembled/day	3200	2350	4100	1250	2400	2500	1000	800	500	-	500	-

Table 6: Arrivals and sales of animals per day

Districts	Regulated markets			Unregulated markets		
	Arrivals	Sales	% Sold	Arrivals	Sales	% Sold
1. SRIKAKULAM	4177	2611	62.50	2738	888	68.95
2. VIZIANAGARAM	4078	2447	60.00	1096	733	66.87
3. VISAKHAPATNAM	2488	1344	54.01	835	613	73.41
4. EAST GODAVARI	7237	4198	58.00	-	-	-
5. WEST GODAVARI	3658	2360	64.51	720	506	70.27
6. KRISHNA	5174	3170	61.26	-	-	-

The particulars of number of animals being marketed in regulated markets under various categories of buffaloes and cattle are presented district wise in table 7. X^2 test was performed to find out the variation between non descript and graded murrah buffaloes under each category and to find out the variation between districts in a given category of animal. From the results it can be seen that there are significant variations in sale of different categories of buffaloes between six districts studied. Irrespective of category of buffaloes, statistically significant differences were noticed in sale of non descriptive animals and graded murrah buffaloes. Similar variations were noticed in cattle categories also. Statistically significant differences were noticed in sale of cattle among six districts and with in each category differences were noticed between local cattle and cross bred cattle.

The information regarding sale of different categories of animals in unregulated markets of six districts is furnished in table 8. X^2 test could not be conducted in unregulated markets as some of the districts did not have unregulated markets in their area. In general it is observed that sale of different categories of animals is comparatively low in unregulated markets than in regulated markets. Among the various categories of animals, milch buffaloes and heifers constituted the major group of animals sold under buffalo category. Similar observations were made in cattle also. It is also observed that number of cattle sold in unregulated markets were comparatively lower than that of the number sold in regulated markets.

4.7 METHOD OF SALE OF ANIMALS

Transaction of animals in all the district markets were found to be either by mutual agreement or through brokers. The number of animals being sold by each mode in various markets is presented in table 9. In regulated markets, the percentage of animals sold by mutual agreement was 48.8, 45, 42, 21.95, 31.91 and

Table 7: Sale of different categories of animals per day in regulated markets

		Srikakulam	Vizianagaram	Visakhapatnam	East Godavari	West Godavari	Krishna
Buffalo:							
Milch N.D.		350	250	80	240	180	280
Milch Graded		1000	800	560	1900	800	1200
	Total	1350	1050	640	2140	980	1480
				X^2= 161.8064			
Dry N.D.		20	40	20	60	50	40
Dry Graded		20	120	60	150	120	220
	Total	40	160	80	210	170	260
				X^2 = 29.34712			
Calves N.D.		5	30	20	30	20	30
Calves Graded		10	60	30	240	60	90
	Total	15	90	50	270	80	120
				X^2 = 37.43858			
Heifers N.D.		220	160	40	120	80	70
Heifers Graded		550	440	240	480	350	320
	Total	770	600	280	600	430	390
				X^2 = 43.64359			
Draught N.D.		60	60	30	60	80	80
Draught Graded		20	120	40	280	120	320
	Total	80	180	70	340	200	400
				X^2 = 138.768			
Slaughter N.D		80	90	30	80	120	60
Slaughter Graded		20	110	60	160	60	30
	Total	100	200	90	240	180	90
				X^2 = 104.2737			
Grand Total		2355	2280	1210	3800	2040	2740

Contd..

Cattle:							
Milch local		60	30	30	110	80	75
Milch C.B.		20	10	15	40	60	125
	Total	80	40	45	150	140	200
				X^2= 60.79087			
Dry local		04	10	-	05	10	15
Dry C.B.		07	15	06	02	05	10
	Total	11	25	06	07	15	25
				X^2 = 11.76081			
Calves local		40	12	-	16	10	10
Calves C.B.		25	07	03	08	20	30
	Total	65	19	03	24	30	40
				X^2 = 23.65726			
Heifers local		20	06	-	-	35	20
Heifers C.B.		20	10	10	100	20	60
	Total	40	16	10	100	55	80
				X^2 = 90.11996			
Draught local		5	10	20	80	20	25
Draught C.B.		10	15	-	-	-	-
	Total	15	25	20	80	20	25
				X^2 = 105.1417			
Slaughter local		30	30	30	10	50	40
Slaughter C.B.		10	12	20	12	10	20
	Total	40	42	50	22	60	60
				X^2 = 14.37327			
Grand Total		256	167	134	318	320	430

Table 8: Sale of different categories of animals per day in unregulated markets

	Srikakulam	Vizianagaram	Visakhapatnam	East Godavari	West Godavari	Krishna
Buffalo:						
Milch N.D.	100	60	20	-	40	-
Milch Graded	300	120	180	-	120	-
Dry N.D.	10	-	10	-	20	-
Dry Graded	15	20	20	-	40	-
Calves N.D.	5	20	10	-	10	-
Calves Graded	5	30	20	-	20	-
Heifers N.D.	140	40	20	-	20	-
Heifers Graded	120	80	140	-	60	-
Draught N.D.	20	20	30	-	12	-
Draught Graded	10	30	20	-	15	-
Slaughter N.D	20	30	40	-	30	-
Slaughter Graded	10	110	20	-	30	-
Total	755	560	535	-	417	-
Cattle:						
Milch local	10	30	10	-	20	-
Milch C.B.	20	20	04	-	05	-
Dry local	13	5	-	-	7	-
Dry C.B.	06	8	10	-	4	-
Calves local	15	40	-	-	03	-
Calves C.B.	15	25	2	-	05	-
Heifers local	10	20	-	-	8	-
Heifers C.B.	12	20	02	-	2	-
Draught local	8	5	15	-	10	-
Draught C.B.	5	10	-	-	-	-
Slaughter local	20	30	25	-	15	-
Slaughter C.B.	5	10	10	-	10	-
Total	133	173	78	-	89	-
Grand Total	888	733	613	-	506	-

Table 9: Method of sale of animals

Agency	Regulated						Unregulated					
	Srikakulam	Vizianagaram	Visakhapatnam	East Godavari	West Godavari	Krishna	Srikakulam	Vizianagaram	Visakhapatnam	East Godavari	West Godavari	Krishna
1. Mutual agreement:												
No.of animals sold per market	1220	1080	525	900	750	1250	200	240	180	-	160	-
% Sold.	48.80	45.00	42.00	21.95	31.91	39.06	20.00	30.00	36.0	-	32.00	-
2. Through broker:												
No.of animals sold per market	1280	1320	725	3200	1600	1950	800	560	320	-	340	-
% Sold.	51.20	55.00	58.0	78.05	68.09	60.94	80.00	70.00	64.00	-	68.00	-

39.06 respectively for Srikakulam, Vizianagaram, Visakhapatnam, East Godavari, West Godavari and Krishna districts. In these districts the percentage animals sold through brokers in regulated markets ranged between 51.20 and 78.05.

In unregulated markets, majority of the animals are traded through brokers (64-80%) percentage of animals sold in unregulated markets by mutual agreement was only 20, 30, 36 and 32 per cent respectively in Srikakulam, Vizianagaram, Visakhapatnam and West Godavari districts.

4.8 MINIMUM AND MAXIMUM PRICE OF ANIMALS

Average minimum price of different categories of animals in various districts is given in table 10 and their analysis of variance in table 11, 12, 13 and 14 respectively. The average minimum price of a graded murrah milch buffalo ranged between Rs.7210 and 11,150. A higher minimum price for graded murrah milch buffaloes was recorded in East Godavari and West Godavari districts. The prices of non-descriptive milch buffaloes were lowest and averaged between Rs.2,200 and 3,150. Among the various categories of buffaloes milch animals had the highest minimum price followed by draught animals and heifers. The average minimum price of dry buffaloes ranged between Rs.975 and 2,900 while the minimum price of slaughter animals was between Rs.750 and 1,120 only. The average minimum price of nondescript buffalo calves varied between Rs.96 and Rs.123. While that of graded murrah calves ranged between Rs.135 and Rs.210. The draught buffaloes fetched a minimum prices from Rs.2,100 to Rs.3,620. The mean minimum price of graded murrah heifers was significantly higher in Krishna district in comparison to other districts. The minimum price of graded murrah calves was almost equal in West Godavari and Krishna districts but these values were lower in comparison to other districts.

Table 10: Average minimum price (rupees) of different categories of animals.

Species/Categories of animals	Srikakulam	Vizianagaram	Visakhapatnam	East Godavari	West Godavari	Krishna
Buffalo:						
Milch N.D	2200	2430	3000	3150	2680	2870
Milch graded	7250	7210	9800	11100	11150	9320
Dry N.D.	975	1160	1210	1460	1325	1100
Dry graded	2450	2710	2900	2875	2390	2200
Calves N.D.	100	96	102	115	123	100
Calves graded	210	205	200	225	135	142
Heifers N.D.	1040	1150	1160	1320	1300	1025
Heifers graded	2420	2900	2850	2660	2430	3150
Draught N.D.	2100	2570	3150	3380	2620	2600
Draught graded	3620	2910	3090	3210	2680	2310
Slaughter N.D.	920	875	1080	1000	800	750
Slaughter graded	1015	1000	1100	1120	910	975
Cattle:						
Milch local	-	-	-	915	1375	900
Milch C.B.	2310	2225	2815	2325	2215	2200
Dry local	720	735	-	730	750	710
Dry C.B.	1950	1920	2375	2610	2415	2200
Calves local	100	103	-	145	115	95
Calves C.B.	101	95	190	160	140	142
Heifers local	1015	1000	-	710	725	700
Heifers C.B.	1910	1925	1560	1815	1825	1760
Draught local	4250	3950	4500	4000	3390	3875
Draught C.B.	4410	3890	-	-	-	-
Slaughter local	1050	1085	1190	975	960	940
Slaughter C.B.	1075	1245	1560	1595	1425	1340

Under milch cattle, crossbred cattle are priced high (Rs.2815) in comparison to local cattle (Rs.910) in all the districts. Among all the categories of cattle, draught animals are high priced (Rs.3,390 to 4,410). Calves are least priced among all categories of animals and their minimum price ranged between Rs.95 and Rs.190. The minimum cost of dry cattle ranged between Rs.710 and Rs.2,610; the cost of heifers between Rs.700 and Rs.1,925 and the cost of slaughter animals ranged from Rs.940 to Rs.1,595 among the six districts.

Analysis of minimum price of various categories of non- descript buffaloes (Table 11) indicated significant differences between districts. However, the price of milch non-descript buffaloes did not vary significantly among Visakhapatnam, East Godavari, West Godavari and Krishna districts. Similarly significant variation in minimum price of non descript dry buffaloes, heifers, calves and slaughter animals was not seen among Srikakulam, Vizianagaram and Visakhapatnam districts.

Statistically significant differences were noticed in the minimum price of all categories of graded murrah buffaloes among the six districts (Table 12). However, the price of milch buffaloes did not vary significantly among Visakhapatnam, East Godavari and West Godavari districts. The price of dry animals, heifers and draught animals were not significantly different among Vizianagaram, Visakhapatnam and East Godavari districts. The average minimum price of slaughter buffaloes did not differ significantly in Srikakulam, Vizianagaram, West Godavari and Krishna districts.

Perusal of table 13 reveals that significant variation in minimum price of different categories of local cattle except dry animals exists among the six districts. Statistically significant differences was not recorded in minimum price of dry local cattle among the six districts. The minimum price of local milch cattle did not vary in East Godavari and Krishna districts. The price of heifers and slaughter cattle did

Table 11: ANOVA of minimum price for various categories of non-descript buffaloes

Mean sum of Squares	Category of buffaloes					
	Milch	Dry	Heifers	Calves	Draught	Slaughter
Between districts	1132192.00**	315787.19**	141604.79*	1525.71**	2324825.89**	101126.39**
With in districts	298939.81	50033.91	42501.56	662.71	180495.51	24957.83

* Significant (P<0.05)
** Significant (P<0.01)

Mean values (Rupees)

Srikakulam	2326.66^{c}	1066.67^{a}	1123.00^{a}	106.53^{ab}	2193.33^{c}	985.00^{bc}
Vizianagaram	2522.22^{bc}	1191.67^{a}	1183.33^{a}	101.11^{a}	2622.22^{a}	933.33^{bc}
Visakhapatnam	3100.00^{a}	1230.00^{ab}	1190.00^{ab}	108.00^{ab}	3260.00^{b}	1110.00^{b}
East Godavari	3170.00^{a}	1515.00^{c}	1395.00^{b}	126.00^{bc}	3490.00^{b}	1027.50^{b}
West Godavari	2757.14^{ac}	1450.00^{bc}	1350.00^{b}	135.71^{c}	2685.71^{a}	839.29^{ac}
Krishna	2916.67^{ab}	1150.00^{a}	1075.00^{a}	105.83^{ab}	2683.33^{a}	762.50^{a}

Note: Mean values with atleast one common supercript in a column do not differ significantly.

Table 12: ANOVA of minimum price for various categories of graded murrah buffaloes

Mean sum of Squares	Category of buffaloes					
	Milch	Dry	Heifers	Calves	Draught	Slaughter
Between districts	28051764.0**	739622.38**	1185555.25**	20162.73**	1877548.75**	70031.20**
With in districts	1216679.0	43840.69	126245.56	686.69	172549.56	18343.56

* Significant (P<0.05)
** Significant (P<0.01)

Mean values (Rupees)

Srikakulam	7473.33^{c}	2529.16^{a}	2483.33^{a}	233.33^{ac}	3700.00^{a}	1041.66^{ab}
Vizianagaram	7466.67^{c}	2771.43^{b}	3028.57^{b}	231.43^{ac}	2985.71^{bc}	1025.00^{a}
Visakhapatnam	10000.00^{ab}	2960.00^{b}	2955.00^{b}	225.00^{a}	3120.00^{b}	1180.00^{b}
East Godavari	11100.00^{b}	2920.00^{b}	2770.00^{ab}	258.00^{c}	3320.00^{ab}	1185.00^{b}
West Godavari	11214.29^{b}	2477.78^{a}	2522.22^{a}	143.89^{b}	2722.22^{c}	963.89^{a}
Krishna	9583.33^{a}	2281.67^{c}	3380.00^{c}	150.00^{b}	2393.33^{d}	1012.00^{a}

Note: Mean values with atleast one common supercript in a column do not differ significantly

Table 13: ANOVA of minimum price for various categories of local cattle

Mean sum of Squares	Category of buffaloes					
	Milch	Dry	Heifers	Calves	Draught	Slaughter
Between districts	500785.00**	2334.50	273042.00**	3946.50**	961779.19**	45275.19**
With in districts	16756.30	3385.38	9510.95	331.98	51411.48	6376.96

* Significant (P<0.05)
** Significant (P<0.01)

Mean values (Rupees)

Srikakulam	--	763.67^{a}	1051.67^{b}	102.60^{a}	4311.67^{d}	1071.00^{b}
Vizianagaram	--	769.44^{a}	1033.33^{b}	106.00^{ab}	4000.00^{a}	1093.33^{b}
Visakhapatnam	--	--	--	--	4560.00^{c}	1206.00^{c}
East Godavari	983.00^{a}	769.00^{a}	735.00^{a}	148.10^{c}	4067.50^{a}	1002.00^{a}
West Godavari	1425.00^{b}	795.71^{a}	796.43^{a}	119.28^{b}	3457.14^{b}	994.29^{a}
Krishna	954.17^{a}	743.33^{a}	700.00^{a}	98.33^{a}	3966.67^{a}	971.67^{a}

Note: Mean values with atleast one common supercript in a column do not differ significantly

not vary between East Godavari, West Godavari and Krishna districts. The price of heifers and slaughter cattle did not vary significantly between Srikakulam and Vizianagaram districts.

Significant differences were noticed in the minimum price of various categories of cross bred cattle among the six districts studied (Table 14). However the minimum price of cross bred milch cattle did not differ significantly among Srikakulam, Vizianagaram, East Godavari, West Godavari and Krishna districts. The minimum sale price of cross bred calves is almost similar among West Godavari and krishna district markets.

Average maximum price for different categories of animals in the six districts is presented in table 15 and their analysis of variance in table 16, 17, 18 and 19 respectively. Among all the categories of animals graded murrah milch buffaloes fetched maximum price in the markets of all the districts studied. Highest price was paid for graded murrah milch buffaloes in East Godavari district (17,900) as against lowest price in Srikakulam district (11,510). Irrespective of the breed, calves fetched the least maximum price among all the categories of buffaloes. Among the milch cattle, cross breds are rated high. The maximum price of Rs.5,010/- was recorded for crossbred milch cattle in Visakhapatnam district. Like in buffaloes, calves fetched lowest price in the markets, more so with the local breed non descript buffalo calves had a maximum average price of Rs.197 among all the districts while graded murrah calf fetched a maximum price of Rs.690. Among all categories of cattle, local draught cattle fetched highest maximum price in the market. Draught crossbred cattle were also priced highest in comparison to other categories. The maximum price of draught crossbred cattle ranged between Rs.5,410 and 5,800 and against Rs.5,385-7,725 for local breeds. Among the slaughter cattle, crossbreds are rated high owing to their body size.

Table 14: ANOVA of minimum price for various categories of cross bred cattle

Mean sum of Squares	Category of buffaloes					
	Milch	Dry	Heifers	Calves	Draught	Slaughter
Between districts	303660.81**	852601.63**	110851.20**	13495.83**	1781568.00**	418158.41**
With in districts	21865.74	11775.31	32144.00	271.96	99178.18	11338.09

* Significant (P<0.05)
** Significant (P<0.01)

Mean values (Rupees)

Srikakulam	2348.67^{a}	1979.67^{e}	1932.67^{a}	102.93^{d}	4476.67^{a}	1091.67^{d}
Vizianagaram	2263.89^{a}	1952.78^{e}	1959.44^{a}	96.22^{d}	3913.89^{b}	1268.33^{b}
Visakhapatnam	2865.00^{b}	2404.00^{b}	1595.00^{b}	200.00^{c}	--	1566.00^{ce}
East Godavari	2337.50^{a}	2692.50^{c}	1858.00^{a}	174.40^{b}	--	1617.00^{c}
West Godavari	2275.00^{a}	2455.00^{b}	1871.43^{a}	146.00^{a}	--	1455.71^{ae}
Krishna	2229.17^{a}	2262.50^{a}	1783.33^{ab}	148.33^{a}	--	1380.00^{ab}

Note: Mean values with atleast one common supercript in a column do not differ significantly.

Table 15: Average maximum price (rupees) for different categories of animals.

Species/Categories of animals	Srikakulam	Vizianagaram	Visakhapatnam	East-Godavari	West Godavari	Krishna
Buffalo:						
Milch N.D	3950	3390	5300	6090	5875	5495
Milch graded	11510	11850	17720	17900	16800	15200
Dry N.D.	2510	2500	2690	3100	2920	2490
Dry graded	3510	3425	3700	3890	4050	4000
Calves N.D.	170	165	195	197	186	182
Calves graded	355	375	690	580	500	475
Heifers N.D.	2310	2260	2610	2925	2910	2390
Heifers graded	3390	3100	2910	4310	4295	3910
Draught N.D.	2260	2250	2695	2910	2900	3680
Draught graded	2710	2910	3925	3785	3940	4350
Slaughter N.D.	1525	1210	1410	1725	1575	1690
Slaughter graded	1590	1310	1980	1890	1810	1675
Cattle:						
Milch local	1510	1420	-	1315	1595	1425
Milch C.B.	3690	3725	5010	2441	4500	4425
Dry local	1420	1310	-	1306	1300	1000
Dry C.B.	1500	2510	2690	2950	3000	2750
Calves local	130	132	-	195	190	225
Calves C.B.	175	210	360	280	300	250
Heifers local	1290	1275	-	1200	1175	990
Heifers C.B.	2050	2040	2210	2320	2300	2210
Draught local	5910	5820	7725	6200	5950	5385
Draught C.B.	5410	5800	-	-	-	-
Slaughter local	1205	1200	1320	1110	1210	1125
Slaughter C.B.	1315	1210	1925	1725	1740	1510

Table 16: ANOVA of maximum price for various categories of non descript buffalo

Mean sum of Squares	Category of buffaloes					
	Milch	Dry	Heifers	Calves	Draught	Slaughter
Between districts	11399194.00**	578400.00**	882387.19**	1753.23**	2470707.25**	315243.19**
With in districts	122270.61	14157.91	24981.56	201.71	45803.82	8359.83

* Significant (P<0.05)
** Significant (P<0.01)

Mean values (Rupees)

Srikakulam	4051.00^{d}	2576.00^{a}	2338.67^{a}	175.13^{b}	2293.33^{d}	1552.33^{bc}
Vizianagaram	3416.11^{c}	2548.89^{a}	2277.78^{a}	171.44^{b}	2284.44^{d}	1233.89^{d}
Visakhapatnam	5320.00^{a}	2724.00^{d}	2668.00^{c}	203.00^{a}	2728.00^{c}	1486.00^{c}
East Godavari	6107.00^{b}	3133.50^{c}	2972.00^{b}	203.70^{a}	3029.00^{b}	1768.00^{a}
West Godavari	5985.71^{b}	2970.00^{b}	2948.57^{b}	193.29^{a}	2958.57^{bc}	1600.00^{b}
Krishna	5566.67^{a}	2540.00^{a}	2400.00^{a}	191.67^{a}	3766.67^{a}	1716.67^{a}

Note: Mean values with atleast one common supercript in a column do not differ significantly.

Statistically significant differences were noticed in maximum price of various categories of non descript buffaloes among six districts. However the maximum price did not vary significantly among the markets with in a particular district. The average maximum price of milch animals, heifers, calves and draught animals did not vary significantly between East Godavari and West Godavari districts. The maximum price of non descript buffalo calves did not differ significantly between Visakhapatnam, East Godavari, West Godavari and Krishna districts.

Analysis of variance (Table 17) revealed significant variation between the six districts in the maximum price of various categories of graded murrah buffaloes. The price of milch buffaloes did not vary among Srikakulam, Vizianagaram and West Godavari. Similarly the price of heifers, draught and slaughter animals of graded murrah category did not vary significantly between East Godavari and West Godavari districts. No much variation is seen in maximum price of graded murrah buffaloes in West Godavari and Krishna districts under dry animals category.

Statistically significant differences were noticed in maximum price of various categories of local cattle among the six districts (Table 18). However, the maximum price of milch cattle did not vary significantly between Srikakulam, West Godavari and Krishna districts. There are no differences in the price of dry animals and heifers among Vizianagaram, Visakhapatnam and West Godavari districts. The price of calves is not significantly different between Srikakulam and Vizianagaram districts and between East Godavari and West Godavari districts. The maximum price of slaughter animals is more or less the same in Srikakulam, Vizianagaram and West Godavari districts.

Analysis of maximum price of various categories of crossbred cattle showed statistically significant differences among the six districts (Table 19). The maximum price of milch cattle did not vary significantly between East Godavari, West

Table 17: ANOVA of maximum price for various categories of graded murrah buffaloes

Mean sum of Squares	Category of buffaloes					
	Milch	Dry	Heifers	Calves	Draught	Slaughter
Between districts	80491928.00**	704025.63**	2475328.00**	145061.00**	3965465.50**	466150.41**
With in districts	413406.59	9245.22	28474.44	532.04	40876.52	9104.00

* Significant (P<0.05)
** Significant (P<0.01)

Mean values (Rupees)

Srikakulam	11683.33^{d}	3556.00^{e}	3402.67^{d}	360.33^{f}	2744.33^{d}	1611.33^{e}
Vizianagaram	11922.22^{d}	3446.67^{d}	3133.89^{c}	384.33^{e}	2962.78^{c}	1367.78^{d}
Visakhapatnam	17790.00^{c}	3742.00^{c}	3952.00^{a}	705.00^{d}	3978.00^{b}	2022.00^{c}
East Godavari	17924.00^{c}	3976.50^{b}	4385.50^{b}	609.00^{c}	3807.00^{b}	1935.00^{bc}
West Godavari	16942.86^{d}	4108.57^{a}	4377.14^{b}	514.29^{b}	3994.29^{b}	1850.71^{b}
Krishna	15966.67^{a}	4101.67^{a}	3954.17^{a}	488.33^{a}	4406.67^{a}	1707.50^{a}

Note: Mean values with atleast one common supercript in a column do not differ significantly.

Table 18: ANOVA of maximum price for various categories of local cattle

Mean sum of Squares	Category of buffaloes					
	Milch	Dry	Heifers	Calves	Draught	Slaughter
Between districts	117344.00**	248248.00**	117802.00**	16917.38**	3636454.50**	31964.80**
With in districts	14285.33	9227.05	13868.57	218.53	25346.78	5173.22

* Significant (P<0.05)
** Significant (P<0.01)

Mean values (Rupees)

Srikakulam	1592.00^{a}	1493.33^{c}	1322.00^{c}	135.80^{c}	5938.00^{be}	1266.67^{b}
Vizianagaram	1476.11^{c}	1386.78^{b}	1307.22^{bc}	138.56^{c}	5853.33^{e}	1245.00^{bd}
Visakhapatnam	--	--	--	--	7784.00^{d}	1382.00^{c}
East Godavari	1344.00^{b}	1385.70^{b}	1255.50^{bc}	201.70^{b}	6225.00^{c}	1184.50^{ad}
West Godavari	1616.43^{a}	1365.71^{b}	1202.14^{b}	197.14^{b}	6020.71^{b}	1271.43^{b}
Krishna	1485.00^{ac}	1014.17^{a}	1009.17^{a}	236.17^{a}	5409.17^{a}	1189.17^{a}

Note: Mean values with atleast one common supercript in a column do not differ significantly

Table 19: ANOVA of maximum price for various categories of cross bred cattle

Mean sum of Squares	Category of buffaloes					
	Milch	Dry	Heifers	Calves	Draught	Slaughter
Between districts	2159283.25**	3941632.00**	167980.79**	47321.39**	1076416.00**	616078.38**
With in districts	21384.35	14889.74	6932.52	385.72	17541.82	6455.83

* Significant (P<0.05)
** Significant (P<0.01)

Mean values (Rupees)

Srikakulam	3718.33^{c}	1510.33^{d}	2076.47^{c}	178.87^{e}	5458.67^{a}	1369.87^{e}
Vizianagaram	3798.33^{c}	2552.22^{c}	2075.00^{c}	218.78^{d}	5896.11^{b}	1247.22^{d}
Visakhapatnam	5086.00^{b}	2702.00^{a}	2229.00^{a}	383.20^{c}	--	1984.00^{c}
East Godavari	4477.50^{a}	3016.50^{b}	2374.50^{b}	304.40^{b}	--	1765.00^{b}
West Godavari	4520.00^{a}	3002.14^{b}	2351.43^{b}	319.57^{b}	--	1779.29^{b}
Krishna	4475.00^{a}	2794.17^{a}	2214.17^{a}	278.83^{a}	--	1541.67^{a}

Note: Mean values with atleast one common supercript in a column do not differ significantly.

Godavari and Krishna districts. Significant variation in the maximum price of heifers, calves, dry and slaughter cattle was not noticed between East Godavari and West Godavari districts.

The components contributing towards the cost of marketing are presented in table 20 out of the many factors, brokerage and feeding and labour costs are the highest contributors for the marketing cost of animal in all the districts. Feeding and labour costs per animal was highest (Rs.80/-) in Srikakulam and Vizianagaram districts while it is the lowest in Krishna district. The brokerage charges were 1% of the sale price of the animal in Visakhapatnam, East Godavari, West Godavari and krishna districts while the brokerage charges were 2% in the markets of Srikakulam and Vizianagaram districts.

4.9 FACTORS INFLUENCING PRICE OF MILCH ANIMALS

Different factors that are influencing the price of milch animals in various districts are presented in table 21. Based on the information collected from all the markets in a districts, the factors were ranked. Among various factors, the single largest factor that contributed to price of milch animals in all the districts is the milk yield. The animal price depends on the amount of milk it gives per day. Except Srikakulam and Vizianagaram districts in all other districts breed ranked second among the factors influencing the price of milch animals. Order of lactation was given second ranking in Srikakulam and Vizianagaram districts. Animals which are in first and second lactation fetched highest prices in almost all the districts. Order of lactation was given 3rd preference in rating the animal in rest of the four districts. Age of the animal has given fourth rank in influencing the price of milch animals. since there is no reliability of information, in majority of the districts fast reference was given least preference in fixing the cost of the animals. Animal physical appearance, colour, horns were given low preference for rating the animals in almost all the districts.

Table 20: Average cost of marketing per animal.

Factors	Srikakulam	Vizianagaram	Visakhapatnam	East Godavari	West Godavari	Krishna
Feeding & labour Costs (Rs/animal)	80	80	75	60	60	50
Transportation charges (Rs/km/animal)	1.50	1.50	1.25	1.00	1.00	0.75
Brokerage (% on the sale price of animal)	2	2	1	1	1	1
Registration fee (Rs/animal)	5.00	5.00	7.00	6.00	5.00	5.00
Marketing fee (Rs/animal)	7.00	8.00	10.00	10.00	9.00	8.00

Table 21: Factors influencing price of milch animals.

Factors	Srikakulam (Ranks)	Vizianagaram (Ranks)	Visakhapatnam (Ranks)	East Godavari (Ranks)	West Godavari (Ranks)	Krishna (Ranks)
1. Breed	III	III	II	II	II	II
2. Animal physical appearance	VI	IV	V	V	V	V
3. Age	IV	VI	IV	VI	IV	IV
4. Lactation	II	II	III	III	III	III
5. Milk yield	I	I	I	I	I	I
6. Other Criteria (color, horns etc.)	V	V	-	IV	VI	VI
7. Past reference (history/pedigree)	VII	-	-	VII	VII	-

4.10 AVAILABILITY OF COMMON FACILITIES

Details regarding availability of different infrastructural facilities in various dairy animal markets are presented in Table 22. Based on the percentage of markets having the respective facilities, the facilities were ranked. Totally 23 facilities were identified weigh bridge, guest house and residential quarters were not avilable in any of the markets and hence they were not ranked out of the total 52 markets, 47 markets (90.38%) had water supply for animals and hence water supply facility was ranked first. Majority of markets were having minimum facilities like water/feed troughs for animals, road connections, kaccha roads and parking place for trucks and carts. Most of the markets (76.5%) have post office facility. Around half of the markets had veterinary aid and banking facilities. Electricity and lighting arrangements are available in only 10 markets out of the 52 markets studied. The most important facility i.e. animal sheds is available in only 5 markets out of 52 markets surveyed and this was allotted 20th rank in the series of facilities available.

4.11 PROBLEMS IN MARKETING OF DIARY ANIMALS

Various problems encountered in the marketing of dairy animals were identified, ranked and presented in table 23. Based on the number of markets having a particular problem, the problems were ranked. The problems in marketing of dairy animals varied between districts. The common problem faced by all markets in the study area was introduction of auction method. The second important problem identified was existence of brokers in the market. In Visakhapatnam and Krishna districts non- cooperation of traders in animal transactions was rated as second problem. In Srikakulam, Vizianagaram and Visakhapatnam districts the third major problem identified was existence of insanitory conditions in the animal markets where as insufficient market space was regarded as third important problem by East Godavari, West Godavari and Krishna

Table 22: Distribution of markets as per availability of common facilities.

Amenities and Facilities	No.of markets involved	Percentage	Rank
1. Potable water supply for animals	47	90.3	I
2. Water/feed troughs	45	86.5	II
3. Road connection	42	80.7	III
4. Post-office	40	76.5	IV
5. Kachha roads	37	71.1	V
6. Parking for trucks/carts	36	69.2	VI
7. Veterinary facilities	29	55.7	VII
8. Banking facilities	27	51.9	VIII
9. Water supply for cleaning & drains	25	48.0	IX
10.Railway connection	24	46.1	X
11.Canteens	22	42.3	XI
12.Loading and Unloading dock	20	38.4	XII
13.Pucka roads	15	28.8	XIII
14.Garbage disposal methods availability	12	23.0	XIV
15.Electricity (lighting arrangements)	10	19.2	XV
16.Office	9	17.3	XVI
17.Toilets/Bath rooms	8	15.4	XVII
18.Telephone	7	13.4	XVIII
19.Fencing & Gate	6	11.5	XIX
20.Animal sheds	5	9.6	XX
21.Weigh bridge	-	-	-
22.Guest house	-	-	-
23.Residential Quarters	-	-	-

Table 23: Problems in marketing of dairy animals

Problems	SRIKAKULAM			VIZIANAGARAM			VISAKHAPATNAM			EAST GODAVARI			WEST GODAVARI			KRISHNA		
	No.	%	Rank	No.	%	Rank	No.	%	Rank	No.	%	Rank	No.	%	Rank	No.	%	Rank
1. Insufficient market space.	8	53.33	IV	5	55.56	IV	2	40.00	IV	7	70.00	III	5	71.43	III	4	66.67	III
2. Non-Cooperation of traders.	5	33.33	VI	4	44.44	V	4	80.00	II	6	60.00	IV	2	28.57	VI	5	83.33	II
3. Lack of transport facility for dispatch of animals to distant places.	6	40.00	V	3	33.33	VI	1	20.00	V	-	-	-	-	-	-	-	-	-
4. Difficulty in introducing auction method if not existing.	13	86.67	I	9	100.00	I	5	100.00	I	10	100.00	I	7	100.00	I	6	100.00	I
5. Inadequate water supply and deleterious salty water in the market area.	3	20.00	VII	1	11.11	VII	-	-	-	-	-	-	-	-	-	-	-	-
6. Existence of insanitory conditions.	9	60	III	6	66.67	III	3	60	III	5	50.00	V	4	57.14	IV	2	33.33	V
7. Lack of security in the market yard.	2	13.33	VIII	-	-	-	-	-	-	-	-	-	6	85.71	II	3	50.00	IV
8. Problems of brokers	10	66.67	II	7	77.78	II	-	-	-	8	80.00	II	3	42.86	V	-	-	-

district markets. Markets in Srikakulam, Vizianagaram and Visakhapatnam districts complained insufficient market space as fourth problem encountered in animal markets. The other problems faced by different markets included lack of transport facility for dispatch of animals, inadequate water supply and lack of security in the market yard etc.

DISCUSSION

CHAPTER V

DISCUSSION

The study was conducted to enumerate dairy animal markets in Animal Husbandry zones I and II of Andhra Pradesh. The results obtained in the study are discussed here under.

The Dairy animal markets are grouped in to four categories according to the controlling authorities. Those markets controlled by Agricultural market committees, Municipalities and panchayats were categorised as regulated markets since there is a controlling authority on the market. Private cattle markets controlled by private agencies/individuals were treated as unregulated markets. However Gopala Rao and Iqbaluddin (1988) classified the markets controlled by Agricultural Produce market committees as regulated markets.

From the perusal of the data it can be observed that except nine markets all other markets are regulated and controlled by legislative or local bodies. It was observed during the study that no marketing committee is exclusively controlling the dairy animal markets. All the Agricultural market committees were primarly established for the management of Agricultural produce markets and dairy animal marketing was also under taken as a part of their activity. Except East Godavari and Krishna districts all other districts had unregulated markets. As there are no cattle markets governed by the local bodies in a given area, the private parties took over the situation and started private markets in these districts.

All the markets were classified in to three categories viz. small, medium and large depending on the number of arrivals of animals to the market per day. However Mondal and Pandey (1993) classified buffalo markets in Haryana as small, medium and large based on income received from cattle fairs. In general the income

received from cattle markets depends on number of animals arrived and transacted. Hence in the present study the market categorization was done based on number of arrival of animals.

Under regulated markets medium sized markets are more in number than large and small sized markets. More number of medium sized markets indicate the number of salable animals in that particular region. It also indicate that the transactors are favouring medium sized markets regulated by official agencies.

But, Patel (1996) observed that small markets were relatively more efficient in buffalo trading. Majority of the unregulated markets are small in size. This indicates that the private parties are not having the capacity and facilities to organize large size markets.

Cattle markets are being held weekly or biweekly in all the markets studied. Pandey et al (1996) noted that the periodicity of cattle fairs and animal transactions is of both short and long duration i.e 5-10days. It was observed in the present study that the day of marketing was so choosen as to avoid clash with the adjacent markets in the region. This study further revealed that the small and medium size markets are mostly held at weekly intervals. Large sized animal fairs are conducted at weekly and biweekly intervals. Since more number of animals are to be assembled and traded in large markets, the periodicity in some of these markets is biweekly.

The assembling agencies in the dairy animal markets consisted of farmers, village merchants, brokers/traders and whole salers. The farmers constituted the major assembling agents in all the districts contributing 35-70% of the animals brought to the market. Village merchants, brokers/traders occupied second position among the assembling agencies in different districts. Village merchants purchase the animals from the surrounding villages and assemble them in the markets. Brokers and whole salers purchase the animals in one market and trade them in the other

market which is being held on the subsequent days. Brokers with a small amount of investment purchase 1 to 5 animals while whole salers purchase considerbly large number of animals. Among all the asembling agencies the percentage contribution is least by the whole salers. This may be due to the limited number of whole salers involved in the trade owing to the higher capital investments involved.

The number of animals arrived and sold depends on the popularity of the market. The number of arrivals and sales of animals is dependent on factors like number of animals available in the area, price and demand for milk and milk products and income to the farmers (Verma et al 1989). Examining the data from the present study, it is found that around 60% of the animals arrived are sold on the same day in the regulated markets. In unregulated markets the percentage of sale is slightly higher than the regulated markets. The number of animals sold was the highest in East Godavari district followed by Krishna district. This may be probably due to the popularity of the markets and more demand for animals in these districts. As per the available census (Directorate of Economics and Statistics, 1993) Krishna district has more dairy animal population (Cattle and Buffaloes put together) than the other districts.

The major categories of animals brought for sale in cattle and buffaloes included milch and dry animals, Heifers, Calves, draught animals and animals for slaughter. In all the districts buffaloes constituted the major species of the dairy animals sold in the market. This may be due to higher demand for buffala milk in these regions over cow milk. Among the various categories of animals the milch animals constituted the major group of animals sold in all the districts. Heifers are the second largest group of animals transacted in both the species. Most of the slaughter animals are of non descript type and may be due to their lower productivity and other associated problems. The number of Calves sold are higher in white Cattle than in buffaloes. Draught animals constituted another major group

of animals sold under buffalo category. This indicates that he buffaloes are being used for draught purpose due to lack of availability and higher cost of male cattle. Among different categories, dry animals are least in number in both cattle and buffaloes indicating that the traders are not showing inclination for the purchase of unproductive animals.

X^2 test was performed to find any significant difference in the sale of animals in regulated markets between the six districts. Though these districts are adjacent to each other but the number of animals sold differ significantly. These differences could be attributed to varying animal population in these districts (Directorate of Economics and statistics, 1993). It was further observed that there is a significant difference between number of local and cross bred animals sold in regulated markets. In milch cattle, local breed dominated the market in comparison to the cross breds. This may be due to availability of more number of local cattle in the area than the cross breds. Slaughter animals also showed the similar trend. Under milch buffalo category the non discript buffaloes are more in number than graded murrah buffaloes indicating more prevalence of these animals in the areas.

In unregulated markets a similar trend was noticed as regulated markets. under milch buffaloes, graded murrah buffaloes dominated the sale and among white cattle except in Srikakulam district, local breeds constituted the major percentage of marketed.

Animals are sold principally by either mutual agreement or through brokers in the six districts studied. Sale of animals through brokers has occupied a major share among the two methods of sale followed. This clearly indicates that brokers are playing key role in the animal transactions. This is not a good sign as majority of the profit will be earned by brokers. Singh and Patel (1987) observed that traders act as intermediaries between producer and consumer and earn profit which ultimately reduces the producers profit. To get major benefit from the sale of the

animal the farmer prefer mutual agreemental of sale rather than falling in the clutches of brokers.

A significant variation was observed in average minimum prices for different categories of animals between the districts. East Godavari and Visakhapatnam districts had the highest minimum price for non descript milch buffaloes. However the minimum price value of nondescript milch buffaloes did not differ significantly between Visakhapatnam, East Godavari and Krishna districts. Similarly minimum price (For nondescrpt milch buffaloes) did not vary much between Srikakulam and Vizianagaram districts. From the results it was observed that the minimum Price of the animals did not vary much between the adjacent and near by districts. Because of the proximity, the farmers can move to a place where the animals are available at comparatively less price. This could probably the reason for a more or less uniform price of animals in the near by districts.

The minimum price for the graded murrah buffaloes were highest in West Godavari and East Godavari districts. Statistical analysis indicated that the minimum price of murrah buffaloes did not vary significantly between East Godavari, Vizianagaram and Visakhapatnam districts. Similarly except slaughter animals, the minimum price of graded murrah buffaloes in all categories did not differ much among these districts.

The variation between minimum and maximum price of milch animals is greater in comparison to the other categories of animals. This may be due to dependence of the milch animal price on production characters like milk yield, number of lactations etc. The maximum price for graded murrah buffaloes in milk is highest in Visakhapatnam and East Godavari districts followed by West Godavari district. In the study it was observed that good quality graded murrah buffaloes with higher milk yield are available in these districts in comparison to other districts. This could be the reason for a higher price of the animals in these districts.

Significant variations were noted between the districts with regards to the maximum price of various categories of animals. Among the various categories, the least maximum price is offered for calves and highest for milch animals. Slaugheter animals are also fetching lower price because of their unproductivity. Irrespective of the category of animals graded murrah buffaloes are rated high in comparison to non descript breed. A similar trend was also observed in the white cattle where the cross bereds are more priced than the local breeds in all the categories. This clearly indicated that among the buffaloes, graded murrah buffaloes are preferred and among the white cattle, cross breeds are preferred. Sidhu (1965) also observed that Murrah breed of buffalo fetched 13 per cent higher price than non descript type. Talukdar (1994) noticed that the price of local cow was lowest in comparison to cross bred cattle. However in Srikakulam districts local breed of draught animals are preferred over cross breeds. This may be due to the belief that Local draught animals are more useful in Agricultural operations over the cross breeds. Kareemulla and Srinivasan (1992) observed that Hallikar breed of bullocks were paid higher prices than that of cross bred and nondescript bullocks.

The market performance is dependent on the market costs and price realised by sellers. The major items contributing to the cost of marketing of dairy animals are feeding and labour costs, transportation charges, brokerage, registration fee and marketing fee. Brokerage, feed and labour expenditure are the major items of cost in marketing of dairy animals in all the districts. Mondal and Pandey (1993) also observed that seller had to incur the maximum amount towards feed and labour costs before the sale of buffaloes. The average cost of feeding and labour was lowest in Krishna district and highest in Viziayanagaram and Srikakulam districts. In the study it was observed that fodder was available at a competitive price in Krishna district and this could be the reason for a lower feed cost in this district. Patel (1996) observed that the major portion of marketing costs for sellers was

feeding expenses in trading of buffaloes in Haryana state. Transportation charges and brokerage charges were least in Krishna district and highest in Srikakulam and Vizianagaram districts.

Milch animals constituted major category of animals sold in the market. Hence a detailed study was under taken to study the preference of characters during sale of the animals. Seven major factors were identified which influence the price of milch animals. Among all the characteristics, milk yield was regarded as the prime factor and determined the price of animals in all the districts. These findings are in agreement with those observed by Singh and Patel (1981), Mondal and Pandey (1993), and Singh *et al* (1996). The second largest contribution for the price is breed characteristics of the animal. In buffaloes graded murrah buffaloes and among cattle, Cross breds with typical characteristics are rated high. However in Srikakulam and Vizianagaram districts the order of lactation was considered as the next important criteria after milk yield in determining the cost of the animal. Animals which are in first lactation are high priced followed by second and third lactations. Out of the six districts in four districts, order of lactation was rated as the third factor determining the price of the lactating dairy animals. Patil and Kawadgave (1996) observed that the market price of the cows increased up to the third lactation and there after gradually decline. Mondal and Pandey (1993) observed that murrah buffalo in the second order of lactation fetches maximum price in Haryana. Singh *et al* (1996) observed that a buffalo in third lactation have the potential to fetch the maximum market price in Punjab state. In the present study it is noted that cow or bufflalo in first lactation fetches maximum market price. Similar observation were made by Kareemulla and Srinivasan (1982). This may be due to the fact that more lactations can be obtained during the productive life of the animal if purchased in the first lactation. Age is the another important criteria that determines the price of the lactating dairy animals. Animal physical

appearance also plays a vital role in determining the cost of the animal. Singh *el al* (1996) observed that lactating murrah buffalo with good general appearance had the potential to fetch a higher market price. Colour, horns are given least preference in case of lactating animals among the qualitative characters of the dairy animals. In most of the markets importance was not given for past history/pedigree of the animal. This could be attributed due to nonavailability of the data as the farmers in general do not maintain any records.

As a part of the survey, availability of common facilities in the markets were studied. Out of 52 markets 47 markets had potable water supply for the animals. This minimum requirement was not available in five markets. Water and feed troughs are available in 45 markets. The ISI institution has included water troughs for animals as the general requirement in the lay out of cattle markets, Gaikwad (1985). Majority of the markets are well connected by roads. More than 60% of the markets had facilities like post office, Bank, etc., only 10 markets had electricity connection. This may be due to the fact that generally the business is closed before the dawn. As for the information available only 9.6% of the market have animal sheds. Except tree shade majority of the markets were not provided with any pucca shelter to the animals. Dhume (1985) observed that only 13% of the market committees in Maharashtra state provided the required number of animal sheds. In the present study it was observed that only 8 markets are having sanitory arrangements for the trade personel and farmers. ISI has prescribed two urinals and two latrines for every 50 persons assembled in the cattle markets. The animals arrived in the markets from various places and hence there is a likely hood of the animals falling sick. So veterinary aid is compulsory in all the markets. But unfortunately such facilities are available only in 55.7% of the markets studied.

An attempt was made to identify the problems in marketing of animals. It was observed that every individual market is having its own problems. Majority of the markets are mainly confronted with the problem of difficulty in introduction of auction method and prevalence of brokers.

Insufficient market space was the second problem expressed by traders and farmers in East Godavari, West Godavari and Krishna districts. Existence of insanitory conditions was complained as the second constraint in the markets of Srikakulam, Vizianagaram and Visakhapatnam districts. Non cooperation of traders, lack of transportation facilities, inadequate water supply and lack of security are the other problems encountered in the marketing of dairy animals. Dhume (1985), observed that lack of water arrangements and lack of funds are some of the problems faced by the Agricultural Produce Market Committees to manage the cattle markets in Maharashtra State. Patel (1996) noticed that lack of security, feeds, water and health care are some of the major problems faced by the market committees in the buffalo markets in Haryana state. However, in the present study these were not rated as major problems.

SUMMARY

CHAPTER VI

SUMMARY AND CONCLUSIONS

In order to provide information for agencies and individuals and official organisations involved in Dairy animal trade, an attempt has been made in this study to collect information with regards to the number of dairy animal markets available in Animal Husbandry Zones I and II comprising of Srikakulam, Vizianagaram, Visakhapatnam, East Godavari, West Godavari and Krishna districts. An attempt was also been made to study the prevailing practices in the dairy animal markets and problems encountered. From the study the following conclusions are drawn.

1. Majority of the dairy animal markets are regulated i.e., controlled by either Agricultural marketing committees or Municipalities or village Panchayats.
2. Medium sized markets regulated by official agencies are more in number than small and large sized markets.
3. Cattle fairs are held weekly or biweekly and day of marketing is so choosen as to avoid clash among the adjacent markets.
4. The farmers are the major assembling agents of animals in all the districts.
5. The number of animals arrived and sold depended on the popularity of the market. The percentage of sale was slightly higher in unregulated markets than the regulated markets.
6. In all the districts buffaloes constituted the major species of the dairy animals sold in the markets.
7. Among the various categories of animals marketing milch animals constituted the major group and dry animals are least in number.
8. The animals are sold principally either by mutual agreement or through brokers. Among the two agencies brokers are playing a key role in animal business.

9. Price variations are more between the districts. Among the adjacent districts the price variations are not significant.

10. The variation between minimum and maximum price of milch animals is greater in comparison to other categories of animals.

11. Brokerage, feed and labour expenditure are the major items of cost in the marketing of dairy animals in all the districts.

12. Milk yield is the major factor that influences the price of milch cattle and buffaloes. The second largest contributor to the price is the breed characteristics.

13. Animals which are in first lactation and yielding more milk have the potential to fetch maximum price.

14. The colour of the animal and horns are given least preference among the Qualitative characters in fixing the price of the dairy animals.

15. Only 9.6% of the markets have the animal sheds. Veterinary aid is available in 55.7% of the markets studied.

16. The major problems in marketing of animals were Identified as

a) Difficulty in introduction of auction method.

b) and involvement of brokers in the trade.

c) Insufficient market space and existance of insanitory conditions in dairy animal markets.

It is suggested that separate markets with all facilities should be created under Government/semi-Government authority for the improvement of dairy animal markets in the six districts studied.

SUGGESTIONS

Basing on the experience gained by field visits and the information available by the data collected, following suggestions are made for the improvement of dairy animal markets in the six districts

1) There should be separate market for the dairy animals regulated by a Government/semi-Government authority.

2) If private markets are unavoidable, such markets, should be issued licens and controlled by periodic check ups.

3) Minimum infrastructural facilities as per theBIS specifications should be made available in all the markets.

4) The market committee authorities and local veterinary staff should play an active role to develop dairy animal trade.

5) All possible efforts should be made to provide quick and cheap mode of transport of animals to the fair and feed and fodders should be made available at a reasonable price at the market.

6) Facilities for health check up and vaccination of animals should be made available at the market site.

7) Marketing channel directly between the owner and purchaser should be encouraged to discourage the middle men or brokers so that the farmers can reep the fruits of animals marketing.

8) Government should take up a detailed survey of the markets and should encourage organisation of more markets where there is a potential for dairy animal trade.

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APPENDICES

APPENDIX- I

(INTERVIEW SCHEDULE)

or

(Questionaire)

Date of Visit :

Date of Market :

Information on marketing of dairy animals

Part-I (Basic Data)

1. General

a. Name of the market

Name of the place

Address ----------

---------- Pin ----------

District ----------

2. Regulations Regulated ( ) Unregulated ( )

Date of Regulation Date---------- Month---------- Year----------

Act applicable Local self government ( )
(Muncipality/Panchayat)
Agricultural Produce
Market Acts ( ) Any other act ( )
(Specify) (Private)

3. Enforcing authority

Name of the authority

Adress ----------

---------- Pin ----------

Ph.No ----------

4. Periodicity : Daily/Weekly/Biweekly( ) Monthly ( ) Half yearly ( )
Yearly ( ) Others ( )

5. Animals : Approximate number of arrivals and sales per day.

Buffaloes

Milch		Dry		Calves		Hiifers		Draught		Slaughter	
A	S	A	S	A	S	A	S	A	S	A	S

Cattle

Milch		Dry		Calves		Hiifers		Draught		Slaughter	
A	S	A	S	A	S	A	S	A	S	A	S

Note: A = Arrivals; S = Sales.

II. INFRASTRUCTURE

Plan/Layout

(i) As per ISI ( ) Yes/No

(ii) Others (specify)

(iii) Total area (in acres or hectare)----------adequate ( )

(iv) Covered area (tick mark (/) if adequately provided or not ( )

(v) Construction (Tick mark (/) if adequately provided or not ( )

a. Fencing and gate ( )
b. Roads ( )
c. Loading/unloading dock ( )
d. Weigh bridge ( )
e. Animal Sheds ( )
f. Water/Feed troughs ( )
g. Office ( )
h. Guest house ( )
i. Canteen ( )
j. Residential Quarters ( )

vi) Amenities (Tick market (/) if provided ( )

a. water supply potable for animals ( )
Cleaning-sheds/gates/animals ( )
b. Electricity ( )
c. Toilets/Bathrooms ( )
d. Veterinary facilities ( )
e. Parking for trucks/carts ( )
f. Banking facilities ( )
g. Post office ( )
h. Telephone ( )
i. Garabage disposal methods availability ( )
j. Rail way connection ( )

PART-II

OPERATIONS

a. Registration fee for animal

Milch cow Rs----------
Milch Buffalo Rs----------
Dry animals Rs----------
Calves Rs----------
Heifers Rs----------
Draught Rs----------
Slaughter animal Rs----------

b. Indicate approximate expenditure on transporting the animals to the fair/market.

(Rs per animal Per.km)

Buffaloes ----------
Cows ----------
Dry ----------
Calves ----------
Heifers ----------
Draught ----------
Slaughteranimals ----------

c. Market fee payable (specimen wise)---------- Rs.per animal

Buffaloes ----------
Cows ----------
Dry ----------
Calves ----------
Heifers ----------
Draught ----------
Slaughteranimals ----------

d. Feeding and labour charges, if any (Rs/animal)---------

2. **Assembling agencies** (animal wise agency may be mentioned i.e., Farmers,village-merchants, brokers/ traders, whole salers)

Buffaloes ----------
Cows ----------
Dry ----------
Calves ----------
Heifers ----------
Draught ----------
Slaughteranimals ----------

3. **Method of sale**
   (i) By mutual agreement
   (ii) By open auction
   (iii) Through Brokers
   (iii) Any other Method (specify)

4. **No.of functionaries engaged in the trade** (their charges)
   a. Brokers
   b. Commision agents
   c. Any other (specify)

PART-III

Price received for different categories	[Minimum price (Rs)]	[Maximum price (Rs)]
Milch buffaloes	N.D	
	Graded	
Dry	N.D.	
	Graded	
Calves	N.D	
	Graded	
Heifers	N.D	
	Graded	
Draught	N.D	
	Graded	
Slaughter	N.D	
	Graded	
Milch cows	Local	
	C.B	
Dry	Local.	
	C.B	
Calves	Local	
	C.B	
Heifers	Local	
	C.B	
Draught	Local	
	C.B	
Slaughter	Local	
	C.B	

Factors influencing Price of milch animals:

For milch animals 1. Breed.
2. Animal physical apperance.
3. Age.
4. Lactation.
5. Milk yield.
6. Other criteria-colour, horns etc.,
7. Fast reference (history/pedigree).

Part IV
Problems Faced and suggestions for improvement

1. Difficulties faced in marketing of Dairy animals due to
   a. Insufficient market space.
   b. Non Co-operation of traders etc.
   c. Lack of transport facility for despatch of animals to distant places.
   d. Difficulty in introducing auction method if not existing.
   e. Inadequate water supply and deleterious salty water in the market area.
   f. Existence of insanitory conditions.
   g. Lack of security in the market yard.
   h. Problem of brokers.

Suggestions for improvement:

APPENDIX II

Dristict/ name of the Market	Location	Day of Market	Weekly(w)/ biweekly(bw)
I. Srikakulam			
Kanchili	Amburam	Sunday	W
Rajam	Rajam	Thursday	W
Narasannapeta	Narasannapeta	Thursday	W
Ponduru	Budumuru	Monday	W
Srikakulam	Chintada	Saturday Sundaay	bw
Tekkali	Dandugopala puram	Saturday Friday	bw
Amadalavalasa	Kollivalasa	Tuesday	W
Bhamini	Battili	Thursday Friday	bw
Palakonda	Naragam	Monday	W
Gara	Gara	Tuesday	W
Kotabommali	Narayanavalasa	Thursday	W
Vajrapukothuru	Pundi	Thursday Friday	bw
Hiramandalam	Hiramandalam	Thursday	W
Kothuru	Balada	Tuesday	W
Meliapatti	Goppili	Friday	W
II. Vizianagaram			
Vizianagaram	vizianagaram	Sunday Monday	bw
Puspatirega	Kandivalasa	Friday	W
Dattirajeru	Pedamanapuram	Saturday	W
Kothavalasa	Kothavalasa	Tuesday	W
Jami	Alamanda	Monday	W
Gurla	Atchuta Puram	Saturday	W
Bobbili	Bobbili	Wednesday	W
Baliji Peta	Baliji Peta	Friday Saturday	bw
Parvati Puram	Parvati Puram	Thursday	W
III Visakhapatnam			
Narsipatnam	Vemulapudi	Wednesday	W
Butchayya Peta	Vaddadi	Sunday Monday	bw
Yelamanchili	Yelamanchili	Thursday	W
Chodavaram	Timiram	Friday	W
Paderu	Araku, guthulaputta	Tuesday	W

IV	East Godavari			
	Alamuru	Alamuru	Tuesday	W
	Jaggam Peta	Ramavaram	Monday	W
	Sankavaram	Kathipudi	Tuesday	W
	MandaPeta	Dwarapudi	Wednesday	W
	Pitha Puram	Pitha Puram	Saturday Sunday	bw
	Ramachandra-puram	DrakshaRamam	Monday Tuesday	bw
	Tuni	Tuni	Sunday	W
	Kirlampudi	Kirlampudi	Wednesday	W
	Rajamundry	Gokavaram	Monday	W
	Ambaji Peta	Ambaji Peta	Wednesday	W
V	West Godavari			
	Tanuku	Velpur	Tuesday	W
	Penukonda	Penukonda	Wednesday Thursday	bw
	Pentapadu	Pentapadu	Sunday	W
	T P gudem	pedatadepalli	Monday	W
	Palakollu	Palakollu	Saturday	W
	Janga Reddy gudem	Janga Reddy gudem	Thursday	W
	Eluru	Appannaveedu	Wednesday	W
VI	Krishna			
	Kankipadu	Kankipadu	Tuesday	W
	Gudivada	Gudlavalleru	Friday Thursday	bw
	Jaggayya Peta	Jaggayya Peta	Saturday	W
	Hanuman Junction	Bapulapadu	Wednesday	W
	Nandigama	Nandigama	Weekly	W
	Kaikalur	Kaikalur	Weekly	W

Note: W = Weekly; bw = bi-weekly.