CHAPTER III

RESEARCH METHODOLOGY
The present chapter deals with the procedure and methods applied in collection and analysis of data. The present study, "Impact of dairy farming on the socio-economic status of the villagers of District Lucknow (U.P.)" was confined to a development block Bakshi Ka Talab and Mall district of Lucknow.

The research methodology is being presented in the following three parts for the sake of convenience:

1. Research design
2. Study of variables
3. Field procedure and statistical methods used.

PART–I RESEARCH DESIGN

1. Locale of the study
2. Selection of district
3. Selection of blocks
4. Selection of villages
5. Selection of respondents
6. Pilot study
7. Pre-testing of the schedules

8. Methods of data collection

1. Location of the study:

   Lucknow region of U.P. was chosen as the locale for the present investigation, owing to have an area suitable for dairy farming which is considered for the present investigation. It has been disseminating modern dairy technology through extension agency among the farmers in this region have better performance and improvement of dairy farming.

2. Selection of District:

   The study was conducted in district Lucknow, U.P. The selection of this district was purposive for the present study as it happens to be home district of the investigator. Besides this, he was well aware of the socio-economic conditions as well as culture of the area. Data collection facilities were available and due to the absence of this type of study in this area is added an importance of the study.

3. Selection of Blocks:

   Out of the eight blocks in Lucknow District, two blocks namely Bakshi ka talab and Mall were selected on the random basis, this district was selected purposively for the present study because of the following reasons.

   ⇒ It is two of the earliest blocks in which all improved dairy practices were implemented.

   ⇒ A great number of farmers had already adopted improved dairy farming practices.

   ⇒ Good transport facilities were available for the research worker from his residence.
Research worker himself is familiar with the dialect of the area.

4. Selection of Villages:

A list of those villages was prepared where 10% dairy owners were found, 5 villages of each block were included in the list. The village development officers have provided this help to the investigator. From the list, five villages from each block were selected randomly. Thus, total of 10 villages have finally selected.

The criteria used for the selection of villages have given below:

1. The villages selected were easily approachable i.e. there were sufficient facilities of transportation.

2. The villages have sufficient number of representative dairy farmers.

5. Selection of respondents:

After selection of villages, a list of heads of the family was prepared. From the list, 20 dairy farmers were taken from each village. Thus, a sample of one hundred cattle owners from each block and two hundred respondents for the final interview were taken for the present investigation.

The details of blocks, villages and respondents are given in following tables.
Table 3.1: Details of samples taken for study.

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Blocks</th>
<th>Villages</th>
<th>Dairy Farmer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Bakshi ka Talab</td>
<td>• Kathawara</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Bhauli</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Bagaha</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Asti</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Naguwamau</td>
<td>20</td>
</tr>
<tr>
<td>2.</td>
<td>Mall</td>
<td>• Manjhi</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Atari</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Ramnagar</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Sanwara</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Badaiya</td>
<td>20</td>
</tr>
</tbody>
</table>

6. Pilot study:

After the selection of respondents and prior to preparation of devices, the researcher himself visited the milk co-operative centre which were connected to the cattle owners. This visit helps me in formulation of schedules and finalizing the sample to be drawn for interview.

7. Pre-testing of schedule:

Before final use of the schedule the investigator collected relevant informations of the present study. This set of instrument was per-tested so as to obtain accurate and relevant information.
8. Method of data collection:

The data were collected with the help of a structured schedule covering all aspects of the study. The researcher himself established report with each respondent at his residence, on farm or where they could be available. The purpose of data collection was explained.

PART –II VARIABLE UNDER STUDY

The variables used in this research are detailed under:

Operational Definitions:

Socio – economic status:

(i) **Age**: Age refers to chronological age of the respondents at the time of collection of data.

(ii) **Education**: It refers to the qualifications of the respondents acquired through formal schooling. It categorised as illiterate, up to primary, up to high school, up to graduate, and the above graduate level.

(iii) **Caste**: Different castes were categoriesd as:
(a) **Forward Caste**: Brahmin, Gupta, Thakur, Kaystha etc.
(b) **Backward Caste**: Ahir, Pal, Kurmi, Carpenter, Nai, Loahar etc.
(c) **Scheduled Caste**: Chamar, Bhangi, Dhobi, Dhanuk, Pasi, Kori etc.

(iv) **Size of holding**: It refers to the land unit owned by respondents under cultivation. The size of holding was measured as upto 1 ha., between 1-2 ha, 2-5 ha and above 5 ha.

(v) **Animal possession**: It refers to the animals possessed by a respondent viz., buffalo, cow, goat and poultry.
PART –III FIELD PROCEDURE AND STATISTICAL MEASURES:

Field procedure and statistical tools applied for the present investigation are given in the following two parts.

(A) FIELD PROCEDURE:

1. Tools of study:

For interviewing respondents, a structured schedule was developed on the following aspects:

1. Knowledge of cattle owners regarding improved dairy practices.
2. Extent of adoption of selected dairy practices.
3. Changes in socio economic status of cattle owners due to the adoption of dairy farming.
4. Relationship between adoption of dairy farming practices and socio-economic status of the dairy farmers.
5. Constraints related to the adoption of improved dairy farming.

2. Period of enquiry:

The data were collected in the month of December 2001 and finished in the month of July 2002.

3. Method of enquiry:

The data were collected by personal interview method. The secondary data were collected from district and block headquarters, journals and reports etc.
(B) STATISTICAL MEASUREMENT

The statistical measures which have been used in this study includes percentage, average, mean score, rank order and correlation coefficient etc.

1. Percentage:

Simple comparisons have been made on the basis of percentage. Formulae for the computation of percentages is given as under:

\[
\text{Percentage} = \frac{\text{No. of respondents belonging to the particular category}}{\text{Total number of respondents}} \times 100
\]

2. Average:

The simple and most important measures of average is the arithmatic mean.

\[
\text{Average} = \frac{\sum X}{N}
\]

Where,

\[
\Sigma = \text{Sum} \\
X = \text{Variate} \\
N = \text{Number of observations}
\]

3. Mean score:

It was calculated to know the average value of particular score. The formulae used is given below:

\[
\text{Mean score} = \frac{\text{Total score on particular item}}{\text{Number of respondents}}
\]
4. Rank order:

Ranking order was used on the basis of the merit of mean score of the items.

5. Analysis of data:

For the purpose of analysis, raw data were classified and tabulated in a systematic manner as per needs of the objectives of present research. After classifying data, average mean score, correlation coefficient were worked out for the purpose of comparison and generalization.

Correlation:

Simple correlation coefficient were calculated to study the relationship between two variables with the help of following equation.

\[
\text{Correlation coefficient} = \frac{\sum (x- \bar{x})(y- \bar{y})}{\sqrt{\sum (x-x)^2 \sum (y-y)^2}} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \Sigma y^2}}
\]

where,

\[x = (x - \bar{x}), y = (y - \bar{y}),\]
DESCRIPTION OF THE TRACT

The details for the locale are summarized here under:

Lucknow is a capital of Uttar Pradesh. It is situated in central part of Uttar Pradesh. District Lucknow is surrounded by Barabanki in the East, Sitapur in the North, Unnao/Hardoi in the West and Raibareli in the South. Gomti river divided Lucknow into two parts namely south and north. The district Lucknow is located between the parallels of 26°30’ and 27°50’ north latitude and 80°34’ and 81°12’ east longitude. District Lucknow extents its boundaries to an area of 2528 square kilometers and 251853 hectares.

Administrative Set Up:

The district Lucknow consist of 4 tehsils, 8 blocks, 97 Nyay panchayat and 511 Gram Sabhas.

Tehsil- The district Lucknow consist of four tehsils namely:-

1. Lucknow Sadar
2. Mohanlalganj
3. Malihabad
4. Bakshi Ka Talab

Block - The district Lucknow consist of 8 blocks namely:

1. Bakshi Ka Talab
2. Mall
3. Malihabad
4. Mohanlalganj
5. Sarojninagar
6. Gosieganj
7. Kakori
8. Chinahat

Climate:

The climate of the district is semi-arid with hot and cold. In the summer season (May and June) temperature may go as high as 34.2 – 45.0 degree celcious. The cold weather generally starts by the end of October and temperature starts falling and may reach its lowest at about 2.3 degree celcious in January and relative humidity varies 83-87 per cent. The wind velocity in the district is 2.65 – 5.50 kilometer per hour.

Soils:

The soils are mainly alluvial with medium texture having various proportions of sand, sit and clay. Clay is known as Matiyar and its mixture with sand is know as Dumat. The low line land consists of rice fields. The river bank soils are mostly sandy.

Rainfall:

The rain fall is irregular, uncertain, irretic and unevenly distributed throughout the year. Rains are often confined to the period extending from July to October with a few winter showers. The average annual rainfall of the district was 953 mm. About 80 per cent of the total rainfall is received during the Mansoon season and present rainfall is 667 mm.

Special weather phenomena:

Depression and cyclonic storms of Bay of Bengal affect the district the Mansoon and cause heavy and widespread rain. In the winter season western
disturbance causes occasion rain or hail. Violent dust and thunders at times accompanied with hail are experienced in the summer months.

Population:

The details of the population of Lucknow District according to the 2001 census have been briefed in Table-1.

Table 3.2: Population of District Lucknow according to 2001 census.

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Population</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total population</td>
<td>3681416</td>
<td>100</td>
</tr>
<tr>
<td>Male population</td>
<td>1946973</td>
<td>52.88</td>
</tr>
<tr>
<td>Female population</td>
<td>1734443</td>
<td>47.12</td>
</tr>
<tr>
<td>Rural population</td>
<td>1349702</td>
<td>36.67</td>
</tr>
<tr>
<td>Urban population</td>
<td>2331714</td>
<td>63.32</td>
</tr>
</tbody>
</table>

Source – office of the district statistical officer.

Table-3.2 Show that the total population of district according to 2001 census was 3681416. Of this rural and urban population consisted 36.67 and 63.33 per cent respectively. The figures for male and female population is 52.88 and 47.12 per cent respectively. The population density of the district was worked out to 1456 and sex ratio of the district is female and male 891-1000.

Occupational pattern

Agriculture is the main occupation and nearly 36 per cent people of the total district population are directly engaged in agriculture.
Land utilization

Total geographical area of the district Lucknow consists of 251853 hectares. Following table shows the break-up of total area under various heads of the land use.

**Table 3.3: The land utilization pattern of District Lucknow during the year 2000-2001.**

<table>
<thead>
<tr>
<th>Land use pattern</th>
<th>Area in hectare</th>
<th>Percentage of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total - geographical area</td>
<td>251853</td>
<td>100</td>
</tr>
<tr>
<td>Forests area</td>
<td>11408</td>
<td>4.53</td>
</tr>
<tr>
<td>Agricultural Barren Land</td>
<td>9241</td>
<td>3.67</td>
</tr>
<tr>
<td>Current fallow</td>
<td>32581</td>
<td>12.93</td>
</tr>
<tr>
<td>Other fallow</td>
<td>17159</td>
<td>6.82</td>
</tr>
<tr>
<td>User and unsuitable- land for agriculture</td>
<td>10044</td>
<td>3.98</td>
</tr>
<tr>
<td>Land use in non – agricultural purposes</td>
<td>23901</td>
<td>9.49</td>
</tr>
<tr>
<td>Pasture</td>
<td>3127</td>
<td>1.24</td>
</tr>
<tr>
<td>Orchards and gardens</td>
<td>3016</td>
<td>1.20</td>
</tr>
<tr>
<td>Net cultivated area</td>
<td>141376</td>
<td>56.14</td>
</tr>
<tr>
<td>Total</td>
<td>251853</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Office of the District Statistical officer.
**Net irrigated area:** The net irrigated area by different sources of irrigation in Lucknow District is given the following table.

**Table.3.4: Source wise net irrigated area in district Lucknow 2000-2001.**

<table>
<thead>
<tr>
<th>Source of irrigation</th>
<th>Net irrigated area (in hectare)</th>
<th>Percentage of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canal</td>
<td>30781</td>
<td>25.44</td>
</tr>
<tr>
<td>Government Tube wells</td>
<td>7689</td>
<td>6.36</td>
</tr>
<tr>
<td>Private Tube wells</td>
<td>81663</td>
<td>67.51</td>
</tr>
<tr>
<td>Wells</td>
<td>183</td>
<td>0.15</td>
</tr>
<tr>
<td>Ponds and tanks</td>
<td>151</td>
<td>0.12</td>
</tr>
<tr>
<td>Other sources of irrigation</td>
<td>507</td>
<td>0.42</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>120974</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

Source: Office of the District Statistical officer.

**Size of operational land holding:**

The district of Lucknow is also infested same problems which are found nearly every where in the country as regard small and fragmented holding. The number and area of operational level holding in different size in district Lucknow are given in table 3.5.
Table 3.5: Number and operational area of land holding under different size in 2000-2001.

<table>
<thead>
<tr>
<th>Size of holdings (in hectare)</th>
<th>Number of operational holding</th>
<th>Percentage of total</th>
<th>Operational area (in hectare)</th>
<th>Percentage of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5 and below</td>
<td>111385</td>
<td>51.74</td>
<td>33605</td>
<td>19.58</td>
</tr>
<tr>
<td>0.5 to 1.0</td>
<td>56018</td>
<td>26.02</td>
<td>40859</td>
<td>23.80</td>
</tr>
<tr>
<td>1.0 to 2.0</td>
<td>32604</td>
<td>15.14</td>
<td>47307</td>
<td>27.56</td>
</tr>
<tr>
<td>2.0 to 4.0</td>
<td>12591</td>
<td>5.85</td>
<td>33564</td>
<td>19.56</td>
</tr>
<tr>
<td>4.0 to 10.0</td>
<td>2540</td>
<td>1.18</td>
<td>13766</td>
<td>8.02</td>
</tr>
<tr>
<td>10.0 and above</td>
<td>142</td>
<td>0.07</td>
<td>2537</td>
<td>1.48</td>
</tr>
<tr>
<td>Total</td>
<td>215280</td>
<td>100.00</td>
<td>171638</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Office of the District Statistical officer.
Area under different corps seasons:

Table 3.6: Season wise area under different crops during 2000-2001.

<table>
<thead>
<tr>
<th>Particular</th>
<th>Area under crops (hectare)</th>
<th>Percentage of total area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area under Kharif</td>
<td>89805</td>
<td>49.94</td>
</tr>
<tr>
<td>Area under Rabi</td>
<td>87257</td>
<td>48.53</td>
</tr>
<tr>
<td>Area under Zaid</td>
<td>2748</td>
<td>1.53</td>
</tr>
<tr>
<td>Total</td>
<td>179810</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Office of the District Statistical officer.

Fertilizer Consumption:

Table 3.7: Fertilizer distribution 2000-2001

<table>
<thead>
<tr>
<th>Elements</th>
<th>Fertilizer Consumption (in tones)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen</td>
<td>20654</td>
<td>75.45</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>5857</td>
<td>21.39</td>
</tr>
<tr>
<td>Potash</td>
<td>864</td>
<td>3.16</td>
</tr>
<tr>
<td>Total</td>
<td>27375</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Office of the District Statistical officer.
Cropping Pattern:

The principal crops grown in district Lucknow are paddy, wheat, potato, maize, gram, barley, pea and some crops grown in district. Cropping intensity of the district is 154.73 per cent.

Crop rotation:

The main crop - rotations of the District Lucknow are as follows:

(A) One year

<table>
<thead>
<tr>
<th>Kharif</th>
<th>Rabi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paddy</td>
<td>Wheat</td>
</tr>
<tr>
<td>Paddy</td>
<td>Mustard +Gram</td>
</tr>
<tr>
<td>Fallow</td>
<td>Potato - Wheat</td>
</tr>
<tr>
<td>Maize</td>
<td>Wheat</td>
</tr>
<tr>
<td>Paddy</td>
<td>pea + Moong</td>
</tr>
</tbody>
</table>

(B) Two year

Maize - Potato - Sugarcane

Maize - pea - Sugarcane

Groundnut - Arhar - Sugarcane

(C) Three year

Fallow - sugarcane - Ratoon

Transport and communication:

Lucknow is served by well knitted network of road and rail transportation facilities. The main railway lines which run through Lucknow are North Railway and North East Railway. There are 28 railway stations and 101 bus station in Lucknow district.