3. RESEARCH METHODOLOGY

This chapter describes the principles and procedures which have been used to analyze the problem and for arriving at the conclusion. This chapter is divided into following sub-headings for clear understanding of the procedures used in the study:

3.1 Locale of the study
3.2 Selection of the respondents
3.3 Design of study
3.4 Variables and their measurements
3.5 Data collection
3.6 Statistical methods used for data analysis

3.1 LOCALE OF THE STUDY

The study was carried out in Karnal district. The Karnal district was selected purposively because of following reasons:

a) Researcher’s familiarity with the area.

b) Krishi Vigyan Kendra, NDRI, Karnal has been providing training to the farmwomen in Karnal district.

Karnal district comprises of six blocks. All the six blocks, i.e., Karnal, Nissing, Indri, Gharaunda, Assandh and Nilokheri were selected together to conduct the investigation.

3.2 SELECTION OF RESPONDENTS

Out of these six blocks, three blocks, i.e., Karnal, Nissing and Indri were covered by KVK, NDRI, Karnal, for conducting the specified trainings. Therefore, these blocks were selected to take a random sample of trainee
farmwomen respondents (trained in the year 2000 and 2001 by KVK). To further refine the respondent sample, three villages from each block were randomly selected as follows:

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Block</th>
<th>Villages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Karnal</td>
<td>Kailash, Kulwahri and Pundrak</td>
</tr>
<tr>
<td>2.</td>
<td>Nissing</td>
<td>Chirao, Jarifabad and Birchpur</td>
</tr>
<tr>
<td>3.</td>
<td>Indri</td>
<td>Gorgarh, Sheikhpura and Gumto</td>
</tr>
</tbody>
</table>

From each randomly selected village (as shown above), a sample of 22 trainee-respondents (albeit, from 2 villages, 23 respondents were selected) was taken. This total sample consisted of 200 trainee respondents trained by KVK in dairy farming and home science activities (preparation of milk products, fruits and vegetables preservation, child care and nutrition, and clothing and textiles). The random sample (200 trainee respondents) drawn from farmwomen was trained in specified training programme during the last two years, i.e., 2000 and 2001.

Remaining three blocks, namely, Gharaunda, Assandh and Nilokheri, which had not been covered by KVK for any programmes were selected for taking samples of non-trainee respondents to clearly differentiate between trainees and non-trainees. For this purpose, from all these blocks, equal number of villages were randomly selected as follows:

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Block</th>
<th>Villages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Gharaunda</td>
<td>Amritpur, Kairwali, Mubarkabad</td>
</tr>
<tr>
<td>2.</td>
<td>Assandh</td>
<td>Pucca Khera, Sheikhpura, Manchuri</td>
</tr>
<tr>
<td>3.</td>
<td>Nilokheri</td>
<td>Bhutana, Raipur, Arjahari</td>
</tr>
</tbody>
</table>

From each village, a sample of 22 non-trainee-respondents (albeit, from 2 villages, 23 respondents were selected) was taken randomly. The total sample consisted of 200 non-trainee-respondents. The area of block and location of villages are marked in the district map shown in Fig. 3.1.
3.3 DESIGN OF THE STUDY

The present study was conducted to determine the knowledge level, level of adoption, reasons for non-adoption or discontinuation and the training needs of trainee and non-trainee farmwomen respondents. The two groups, i.e., trainees and non-trainees of specified training programme were compared for above-mentioned dependent variables. A randomized sample of trainee respondents was interviewed using the well-structured interview schedule. A copy of the Interview-schedule is appended as Annexure-I.

All randomly selected “trainee farmwomen” (TFW) had undergone training in scientific dairy farming (SDF), milk products preparation (MPP), fruits and vegetable preservation (FVP), child care and nutrition (CCN), and clothing and textiles (CT). The respondents were interviewed to obtain certain information, like knowledge level gained, level of adoption, reasons for non-adoption or discontinuation, and perceived training need vis-à-vis various types of above-mentioned training programmes, i.e., SDF, MPP, FVP, CCN and CT.

The similar information was obtained through the same questionnaire (Annexure-I) from those respondents, who were not given any of the above trainings. This group was called as “non-trainee farmwomen” (NTFW).

The dependent variables for TFW and NTFW groups as presented in Table 3.1 were calculated and distributed in three different categories of low, medium and high scores as obtained by respective trainees. Dependent variables were measured for various types of techniques / trainings imparted to the TFW. In total, there were two groups (TFW and NTFW), four dependent variables, i.e., level of knowledge gained (A), level of adoption (B), reasons behind non-adoption or discontinuation (C), and perceived training needs (D), five types of trainings (SDF, MPP, FVP, CCN and CT), and three levels (low, medium, high) for dependent variables. For clear expression, dependent variables of TFW and NTFW were coded as per list of Table 3.1.
Table 3.1  Design of the study.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Variable Compared</th>
<th>Various Trainings Conducted in 2000-2001</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Dependent Variables</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SDF (1) MPP (2) FVP (3) CCN (4) CT (5)</td>
</tr>
</tbody>
</table>

**Trainee Farmwomen (TFW):**

A) Level of knowledge gained
   - A.1
   - A.2
   - A.3
   - A.4
   - A.5

B) Level of adoption
   - B.1
   - B.2
   - B.3
   - B.4
   - B.5

C) Reasons of non-adoption or discontinuation
   - C.1
   - C.2
   - C.3
   - C.4
   - C.5

D) Perceived training needs
   - D.1
   - D.2
   - D.3
   - D.4
   - D.5

**Non-Trainee Farmwomen (NTFW):**

E) Level of knowledge gained
   - E.1
   - E.2
   - E.3
   - E.4
   - E.5

F) Level of adoption
   - F.1
   - F.2
   - F.3
   - F.4
   - F.5

G) Reasons of non-adoption or discontinuation
   - G.1
   - G.2
   - G.3
   - G.4
   - G.5

H) Perceived training needs
   - H.1
   - H.2
   - H.3
   - H.4
   - H.5

A.1 to A.5 = Dependent variables (knowledge gained) for different types of training (SDF, MPP, FVP, CCN and CT);
B.1 to B.5 = Dependent variables (level of adoption) for different types of trainings (SDF, MPP, FVP, CCN and CT);
C.1 to C.5 = Dependent variables (reasons for non adoption) for different types of trainings (SDF, MPP, FVP, CCN and CT);
D.1 to D.5 = Dependent variables (perceived training needs) for different types of trainings (SDF, MPP, FVP, CCN and CT);
E.1 to E.5 = Dependent variables (knowledge gained) for different types of training (SDF, MPP, FVP, CCN and CT);
F.1 to F.5 = Dependent variables (level of adoption) for different types of trainings (SDF, MPP, FVP, CCN and CT);
G.1 to G.5 = Dependent variables (reasons for non-adoption) for different types of trainings (SDF, MPP, FVP, CCN and CT);
H.1 to H.5 = Dependent variables (perceived training needs) for different types of trainings (SDF, MPP, FVP, CCN and CT).
3.4 VARIABLES AND THEIR MEASUREMENTS

For the present study, relevant variables were selected after extensive review of available literature, wide consultations with the scientists and keeping in view the theoretical orientation of different concepts and objectives of the present investigation. The variables selected and the instrument used for their measurements are given in Table 3.2.

Table 3.2 Variables and their measurements.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Variables</th>
<th>Measurements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Independent Variables:</strong></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Age</td>
<td>Direct questioning</td>
</tr>
<tr>
<td>1.2</td>
<td>Education</td>
<td>Direct questioning</td>
</tr>
<tr>
<td>1.3</td>
<td>Family type</td>
<td>Direct questioning</td>
</tr>
<tr>
<td>1.4</td>
<td>Family size</td>
<td>Direct questioning</td>
</tr>
<tr>
<td>1.5</td>
<td>Operational land holding</td>
<td>Direct questioning</td>
</tr>
<tr>
<td>1.6</td>
<td>Herd strength</td>
<td>Schedule developed</td>
</tr>
<tr>
<td>1.7</td>
<td>Milk production</td>
<td>Direct questioning</td>
</tr>
<tr>
<td>1.8</td>
<td>Social participation</td>
<td>Direct questioning</td>
</tr>
<tr>
<td>1.9</td>
<td>Extension contact</td>
<td>Schedule developed</td>
</tr>
<tr>
<td>1.10</td>
<td>Mass media exposure</td>
<td>Schedule developed</td>
</tr>
<tr>
<td>2.</td>
<td><strong>Dependent Variables:</strong></td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>Gain in knowledge</td>
<td>Schedule developed</td>
</tr>
<tr>
<td>2.2</td>
<td>Level of adoption</td>
<td>Schedule developed</td>
</tr>
<tr>
<td>2.3</td>
<td>Reasons behind non-adoption or discontinuation</td>
<td>Schedule developed</td>
</tr>
<tr>
<td>2.4</td>
<td>Perceived training needs</td>
<td>Schedule developed</td>
</tr>
</tbody>
</table>

3.4.1 Independent Variables

3.4.1.1 Age

This refers to chronological age of respondents in years, rounded to the nearest whole number at the time of investigation, and was ascertained by direct questioning. The respondents were categorized into three age-categories:
1. Young age : Less than or equal to 25 years
2. Middle age : 26 to 50 years
3. Old age : More than 50 years

3.4.1.2 Education

It refers to the functional literacy and / or academic qualification of the respondents, which were ascertained by direct questioning. The respondents were categorized into seven categories as follows :

1. Illiterate
2. Can read only
3. Can read and write
4. Up to Middle
5. Matric
6. Intermediate
7. Graduate

3.4.1.3 Family size

It refers to number of individuals living under the same roof and sharing kitchen together in a household. It was measured through enumeration by giving one score to each family member. Respondents were categorized into following three categories :

1. Small : Less than or equal to 5 members
2. Medium : 6 to 8 members
3. Large : More than 8 members

3.4.1.4 Family type

This indicated the nature of family, i.e., nuclear and joint. This was measured by direct questioning.
3.4.1.5 Operational land holding

It refers to actual land area (in hectares) cultivated by respondents having the ownership status. This was ascertained by direct questioning. Respondents were categorized into five categories as follows:

1. Landless : No land
2. Marginal : Less than or equal to 1 hectare
3. Small : 1 to 2 hectares
4. Medium : 2 to 4 hectares
5. Large : More than 4 hectares

3.4.1.6 Herd strength

Herd strength refers to total number of bovines (cows and buffaloes) including young ones as possessed by the respondent family. The respondents were categorized into following four categories:

1. No animal : 0
2. Small : Less than or equal to 5 animals
3. Medium : 6 to 10 animals
4. Large : More than 10 animals

3.4.1.7 Milk production

It refers to total quality of milk produced (litres) by all the milch animals as possessed by respondents on the day prior to interview. It was measured by direct questioning and respondents were classified into five categories according to milk produced (per day) in litres as follows:

1. 0
2. 1 to 7 litres
3. 8 to 14 litres
4. 15 to 21 litres
5. More than 21 litres
3.4.1.8 Social participation

It refers to the involvement of an individual in any formal as well as informal social organizations / institutions as a member or office-bearer. It was measured by direct interview through pre-structured schedule.

If the respondent is a member in any social organization, she was given a score of 1 for each membership. When the respondent is an office bearer, she was given a score of 2 for each organization and institution to quantify and categorize the social participation.

The respondents were classified into following categories for their social participation:

1. No participation : 0
2. Low : 1 to 2
3. Medium : 3 to 4
4. High : More than 4

3.4.1.9 Extension contacts

It refers to the acquaintance and frequency of respondent's contact with neighbours, friends, fellow progressive farmers, village leaders, village sarpanch / panchayat members, family members and relatives for obtaining agricultural and dairy related knowledge / information. Similarly, it also refers to acquaintance and frequency of contacts with Gram Sewak, Livestock Development Officers, Assistant Extension Officers, Cooperative Officials, Bank Personnel, ICAR Scientists, Block Development Officers, Agriculture Development Officers, KVK / KGK, IVLP workers and stockmen for acquiring the relevant knowledge.

It was measured through pre-structured schedule and responses were scored on 3-point continuum scale, namely, frequently, sometimes and rarely, which were assigned the respective scores of 3, 2 and 1. The farmwomen respondents were categorized into following three groups based on the score obtained by them:
1. Low : Less than or equal to 10
2. Medium : 11 to 20
3. High : More than 20

3.4.1.10 Mass media exposure

It is a degree of utilization of mass media, i.e., newspaper, radio, T.V. and documentary films/video films. This was measured by using a schedule developed for this purpose. Scores of 3, 2 and 1 were assigned to 3 point continuum, viz., frequently, sometimes and rarely, respectively.

On the basis of the obtained scores, the respondents were categorized into following three categories:

1. Low : Less than or equal to 4
2. Medium : 5 to 8
3. High : More than 8

3.4.2 Dependent Variables

3.4.2.1 Gain in knowledge

Singh and Singh (1976) defined knowledge as the totality of understood information as possessed by a person. Gain in knowledge refers to the amount of additional knowledge or facts a person acquires. In the present study, gain in knowledge refers to increase in the amount of knowledge of trainee farmwomen (TFW) as a result of exposure to various training programmes.

The schedule was developed on the basis of experience and ease of quantifying the knowledge level. The knowledge level within TFW and NTFW was classified into three levels, i.e., low, medium and high. The knowledge level was compared between the groups.

3.4.2.2 Level of adoption

Extent of adoption refers to actual adoption of scientific package and practices in their day-to-day work, which were imparted to them through
various training programmes. Level of adoption was also measured with the help of well-structured questionnaire. The level of adoption was measured at four levels, i.e., always, sometimes, rarely and never. These were given scores as 3, 2, 1 and 0, respectively. The respondents from TFW and NTFW groups were asked with the help of structured questions through personal interviews and on the basis of their responses these were given scores. The questions were structured for all types of training programmes, i.e., SDF, MPP, FVP, CCN and CT (Annexure-I). The scores obtained were added up to quantify the adoption level of TFW and NTFW groups.

3.4.2.3 Reasons behind non-adopt or discontinuation

Both the groups were asked through direct personal interview regarding the reasons for non-adopting the package and practices / method imparted to them through various training programmes. The matter was discussed with the respondents. The reasons given by the respondents were rationalized and moderated to make them fit into the priority list. The list consisted of nine important reasons of non-adoption.

3.4.2.4 Perceived training needs

Perceived training needs of TFW and NTFW groups was evaluated with the help of well-structured questionnaire designed for different training programmes. The responses scored on 4-point scale giving scores of 3, 2, 1 and 0 for responses as "very much needed", "needed", "somewhat needed" and "not needed", respectively. The scores obtained were taken up to measure the degree of training need, which were also classified at three levels, i.e., low, medium and high. The scores of both TFW and NTFW groups were compared to obtain the perceived training need between these groups. The detail of questions of various training programmes structured for obtaining perceived training needs can be referred from interview schedule appended as Annexure-I.
3.5 DATA COLLECTION

Data were collected through personal interview with the help of structured interview-schedule developed for the study of both trainee farmwomen (TFW) and non-trainee farmwomen (NTFW). They were asked questions in their local language. Care was taken to take the interviews of respondents during the period when they were comparatively free and relaxed from their day-to-day work. A maximum of 5 schedules were filled in one day. Care was also taken to take interview of a single respondent without the presence of any other respondent. A total of 200 trainee farmwomen as well as 200 non-trainee farmwomen spread over six blocks and eighteen villages were interviewed to obtain the responses.

3.6 STATISTICAL ANALYSIS

The data were compiled, tabulated and analyzed by using standardized statistical tools, such as, mean, percentage, frequency distribution, correlation coefficients and t-test.
Trainee Farmwomen Cleaning the Udder of crossbred Cow during an On-campus SDF training programme at KVK, NDRI, Karnal

Gulabjamun Making Process demonstrated to farmwomen by the Scholar during an on-campus MPP training programme at KVK, NDRI, Karnal
Demonstration of Urea Treatment of Wheat Straw during an Off-campus SDF training programme in village Chirao.

Rasmalai making process demonstrated to farmwomen by the Scholar during an on-campus MPP training programme at KVK, NDRI, Karnal
Demonstration of *Achar* Making to Farmwomen during an On-campus FVP training programme at KVK, NDRI, Karnal

Health Check-up of Farmwomen’s Children during an Off-campus CCN training programme in village Pundark
Trainee Farmwomen Shown Around NDRI Cattle Yard during an On-campus SDF training programme at KVK, NDRI, Karnal.

Demonstration of Garment Stitching to Farmwomen during an Off-campus CT training programme in village Kailash