Chapter-3

Research Methodology: Sampling Technique Concepts and definitions
CHAPTER-III
RESEARCH METHODOLOGY

The research methodology plays a greater role in the whole research programme. It is a blueprint of proposed research problem which includes an outline of what the researcher proposes to do. The research methodology adopted for the present study has been given under the following sub-heads:

(i) Sampling technique
(ii) Method of enquiry and collection of data.
(iii) Period of enquiry and
(iv) Analytical measures

(i) Sampling technique:

A three stage stratified random sampling technique was adopted for the selection of blocks, village and farmers in district Kanpur dehat.

Selection of district:

The district Kanpur dehat was selected purposively, because of acquaintance, convenience in collection of data and farmers production of potato on large area.

Selection of Blocks:

From the district, a list of blocks growing at least 5 per cent potato of their total cropped area, was prepared. Then from this list two blocks namely Rajpur and Bhoganipur were selected purposively, due to convenience of the investing. (Block-Bhoganipur, now named Block-Amraudha).
Selection of Villages:

Now, a list of villages, falling under the selected blocks was prepared into two categories, i.e. potato producing villages (at least 8 percent cropped area under potato) and non-potato producing villages. From potato producing villages, 20 villages from each selected blocks were selected randomly.

Selection of Farmers:

A list of the farmers having at least 20 percent area under potato crop to their total cropped area was prepared from each of the selected villages. The farmers were grouped into 3 size groups of 0-1 hectare (marginal), 1-2 hectares (small) and 2 hectares and above size group (large). Then a random selection of 09 farmers from each village was made. The number selected in each size groups was kept proportional to total number of farmers falling under each size groups in the universe of 40 villages. Thus, the study was made of 360 farmers, selected from 40 villages of two blocks i.e. Rajpur and Bhognipur block of district Kanpur dehat.

Selection of Market and Functionaries:

The Rajpur (village market) and Bhognipur potato mandi (wholesale/regulated) were selected purposively for studying the marketing of potato crop. All the agencies and functionaries, operating in the mandi were studied.
To workout the marketing cost marketing margins and producer’s share in consumer’s price, 10 cases were studied from the selected markets.

**Method of enquiry and source of data:**

The enquiry was conducted by survey method. Data were collected by personal interview with the respondent on well-prepared schedules and questionnaires. During the study period several visits were made for collection of informations. The convenience of the farmers was given due consideration and all possible care was taken to ensure the accuracy and reliability of the data. The informations furnished by the respondents were supplemented and suitably edited through personal observation and cross checks. The assistance of block and village level officers, block development officers, Lekhpal of the study area was also sought to have a counter check and more accurate data.

The secondary data were compiled from the published reports, journals and office records of different concerning departments, i.e. block development office, district statistical office, district agriculture office, census report 2011, district agriculture marketing office etc.

**Prices of Inputs and outputs:**

The prices of inputs and outputs were collected along with physical input output data from the farmers. The wages for human labour and bullock labour were imputed at the prevailing rate of wages of the study area.
Period of Enquiry:


Analytical Measures:

The following analytical measures were used for analysis and interpretation of data.

Tabular analysis

Tabular analysis was used to compare different values of farm economy and other aspects of farm business on various Size groups of selected farms.

Averages:

The averages given refers to the averages of the aggregate values.

Weighted average:

The weighted average was utilized in the present study.

Weighted average \( = \frac{w_1x_1 + w_2x_2 + \cdots + w_nx_n}{w_1 + w_2 + \cdots + w_n} \)

\[ i = \frac{\sum_{i=1}^{n} w_ix_i}{n} \]

Where,  
\( x \) = Values of n item  
\( w \) = Weight of x
**Marketable Surplus:**

It is the residual product available with the farmer after meeting his family and farm needs. It is calculated as

\[
\text{Marketing surplus} = \frac{\text{Total Production} - \text{Retention by farmer}}{\text{Total Production}} \times 100
\]

Where Retention = Family + wage paid in kind + feed to animals + quantity used as seed + other retentions.

**Producer's share in consumer's price:** It was worked out by using the following formula:

\[
P_5 = \frac{(P_F + P_r)\times 100}{P_F}
\]

Where \(P_5\) = Producer's share; \(P_F\) = Farmer's sale price and \(P_r\) = Retail price.

**Marketing Margin of a Middleman:** It was measured by:

Absolute Margin of \(i^{th}\) middleman = \(P_{ri} - (P_{pi} + C_{mi})\)

Where \(P_{ri}\) = Total value of receipts per unit (Sale price)

\(P_{pi}\) = Purchase value of goods per unit (Purchase Price)

\(C_{mi}\) = cost incurred on marketing per unit.

**Total cost of Marketing:** It was computed as follows:

\[
C = C_F + C_{m1} + C_{m2} + C_{m3} + \ldots . C_{mi}
\]

Where \(C\) = Total cost of Marketing

\(C_F\) = Cost paid by producer

\(C_{mi}\) = cost incurred by the \(i^{th}\) middleman in the process of buying and selling the produce.

**Marketing Efficiency:** It was measured by using the following expression

\[
\text{ME} = \frac{O}{I} \times 100 \quad \text{where ME = Marketing efficiency; O = Consumer's price & I = Total marketing cost.}
\]
Concepts and Terms Used: (Production)

Operational Holding:

The area of land actually cultivated by the farmers and his family including the area under trees, well, if these are in the cultivated field. It includes all area under self-cultivation whether owned or leased in. It includes current fallow also.

Marginal Farmers:

Cultivators having an operational holdings of below one hectare.

Small Farmers:

Cultivators having an operational holding between one to two hectare.

Big Farmers:

Cultivators having an operational holding of 2 & above hectares size group.

Cropping Intensity

Cropping intensity is the ratio of total cropped area to net cultivated area and is represented in percentage.

\[
\text{Cropping Intensity} = \frac{\text{Total Cropped Area}}{\text{Net Cultivated Area}} \times 100
\]

Cultivated area:

Net area sown + current fallow.

Total cropped area:

It refers to the net area sown plus area sown more than once.

Farm Family:

It includes all members of the farm family irrespective of age & sex, sharing common kitchen (the adult falling in age group 15-55 years and children below 15 years).

Farm Family Worker:

All family member working whole time on the farm.
Fixed Capital:

These capital items last relatively long time. They gradually lose their services through wear and tear till they economically become unfit for use i.e. live stock, building, trees, fencing, layout, implements and machinery etc.

Total Cost:

Total cost comprises of two component’s i.e. fixed and variable costs.

Fixed Cost:

Fixed costs are there costs which do not vary with the level of production i.e. land revenues, taxes, contractual payment, value of services from fixed resources etc.

Variable Cost:

Constitute the outlay of fund that are a function of output in a given production period i.e. they vary with the level of output.

Cost-concepts:

Cost-\( A_1 \)

It pertains to all paid out cost or expenses incurred either in cash or kind on (i) Cost on hired human labour, (ii) Cost on owned and hired machinery/bullock labour, (iii) Cost on seed & manure (both purchased and farm produced) and fertilizers, (iv) Cost on irrigation and plant protection & depreciation and maintenance cost on implements.

\[
\begin{align*}
\text{Cost } A_2 &= \text{Cost } A_1 + \text{Rent of leased in land.} \\
\text{Cost } B_1 &= \text{Cost } A_2 + \text{Interest on working and fixed capital.} \\
\text{Cost } B_2 &= \text{Cost } B_1 + \text{rental value of owned land} \\
\text{Cost } C_1 &= \text{Cost } B_1 + \text{value of family labour.} \\
\text{Cost } C_2 &= \text{Cost } C_1 + 10 \text{ percent of cost c.}
\end{align*}
\]
**Gross Income:**

It includes following:

(a) Cash received on account of the sale of farm produce.

(b) Value of the produce, main or by-product used for home consumption and for cattle feed or given over as wages in kind.

(c) Value of the seed stored for sowing purpose.

**Net Income:**

Gross income minus total expenses of production.

**Family Labour Income:**

Gross income - Total expenses (excluding family labour wages).

**Farm Business Income:**

Family labour income + Interest on owned capital + Rental value of land.

**ALLOCATION AND APPORTIONMENT OF COST:**

**Land:**

The price of land is based on the prevailing rates for various grades of land in villages or in the neighborhood. The actual price of sale and purchase of land has also been taken into account.

**Farm Building:**

It has been evaluated at prevailing prices in villages at the time of evaluation.

**Livestock:**

It has been evaluated at prevailing prices in villages at the time of evaluation.

**Hired Labour:**

The value of hired labour includes wages paid both in cash and kind.

**Family Labour:**

It has been evaluated at current rate in the villages as for hired labour.
Bullock Labour:

It has been evaluated @ Rs. 200/- per bullock pair per day as prevailing in the villages.

Seeds:

Purchased seeds has been evaluated at prevailing prices paid plus transport charges, if any. Home produced seeds has been evaluated at current prices prevailing in village.

Manures:

The home production farm yard manure have been evaluated at 200/- per cartload of 5 quintals in the locality.

Irrigation Charges:

The prevailing charges for canal tube wells and pumping set irrigation, have been taken into consideration.

Rental Value of Land:

It has been evaluated at 10 per cent of value of land at village prices. and apportioned on the basis of crop period.

Interest on Working Capital:

It has been charged at the rate of 12 per cent per annum for half of the period the crop remains standing in the field.

Interest on Fixed Capital:

It has been evaluated at the rate 12 per cent per annum.

Repairs and Upkeep:

Repairs to dead stock or upkeep of implements and machinery have been apportioned in proportion to bullock units utilized in different crops.
Overhead charges:

Includes:

(1) Interest on working capital @ 12 percent for half of the period, the crop remains standing in the field.
(2) Interest on fixed capital @ 12 percent per annum.
(3) Depreciation @ 3 per cent per annum.
(4) Repair to Dead stock @ 3 per cent per annum.

Concepts and Definitions used (Marketing):

Arhatias:

Arhatias in unregulated markets are of two types: Kaccha arhatia primarily acts for the sellers, including farmers. They sometimes provide advance money to farmers and itinerant traders on condition that the produce will be disposed off through them. They charge arhat or commission in addition to the normal rate of interest on the money they advance. Pucca arhatias act on behalf of the traders, wholesalers, processors etc. They act as their agents for the purchase of produce within a given price range.

Commission agent:

A commission agent is a person operating in the wholesale market who acts as the representative of either a seller or a buyer. He normally takes over the physical handling of the produce, arranges for its sale, collects the price from the buyer, deducts his expenses and commission and remits the balance to the sellers.

Agent Middlemen:

Middlemen act as representative of their clients. They sell their services and receive income in the farm of Commission or brokerage. They are of two types: (i) Commission agents or arhatias and (ii) Brokers.
Brokers:

Brokers render personal services to their clients in the market but unlike the commission agents they do not have physical control of the product. The main function of a broker is to bring together buyers and sellers on the same platform for negotiation. Their charge is called brokerage.

Wholesalers:

Wholesalers are those merchants middlemen who buy and sell produce in large quantities. They may have their own godowns for storage of the produce. They sell to retailers or processors.

Retailers:

Retailers buy goods from wholesalers and sell them to the consumers in small quantities.

Itinerant Traders:

Itinerant traders are petty merchants who move from village to village and directly purchase the produce from the cultivators and sell it in nearby primary or secondary markets.

Village Trader:

Village traders have their small establishment in villages. They purchase the produce of those farmers who have either taken finance from them or those who are not able to go to market. They usually collect the produce from the villages and village markets, and bring it to the secondary markets.

Hamals:

Hamals are the labourers who do loading and unloading, assist in weighing the bags, perform clearing, sieving and refilling jobs and stitch the bags.
Marketing Channel:

Marketing channels refer to routes through which produce move from producers to consumers.

 Marketable Surplus:

The marketable surplus refers to the quantity of the produce left with the producer for sale, after meeting his requirements for family consumption, farm needs for seeds and feed for cattle, payment to labour in kind etc.

 Marketed Surplus:

Marketed surplus is that quantity of the produce which the producer-farmer actually sells in the market, irrespective of his requirements for family consumption, farm needs etc.

Producer’s share in consumer’s price:

It is the price received by the producer-farmer as a percentage of the retail price (price paid by the consumer).

Marketing Margin:

This is the difference between the total payment (costs + purchase price) and receipts (sale price) of the middleman.

Price Spread:

In the marketing of agricultural produce, the difference between the price paid by the consumer and the price received by the producer for an equivalent quantity of farm produce, is known as Price spread.