

# **Annex 1**

## **Tools and Techniques for Data Collection and Analyses**

### **Survey-1**

The first questionnaire was designed to procure primary information regarding the timing, stimuli, pace, social resistance, and present state of agricultural transformation. This involved an exploratory research design and unstructured interview technique to procure information. Twenty socially active and knowledgeable farmers were interviewed in this survey.

### **Survey-2**

The second questionnaire was designed to get information about the cropping patterns and their determinants in the sample villages. Twenty-four educated and experienced farmers (two from each sample village) were interviewed in this survey.

### **Survey-3**

The third questionnaire was designed to study the cost, yield, and returns from different crops. The respondents and the sample size were the same as in Survey-2. A respondent was asked to take one of his fields with average productivity as a reference field and to estimate the inputs and outputs in reference to all the important crops, one by one.

### **Survey-4**

The fourth questionnaire was designed to study the level of commercialisation (i.e., the percentage of area under commercial crops) and its determinants, marketing practices, and impact of commercialisation on migration and animal husbandry at household level. The sample size for this survey was 60 (5 from each sample village). The households were selected randomly and information was collected from the head or the most active member of the family.

### **Survey-5**

The purpose of this survey was to examine the attitudes of different segments of the farmer population towards vegetable farming. The survey was based on unstructured interviews and no questionnaires were prepared for this purpose. A total of 40 respondents were interviewed (12 elders, 12 male adults, 4 female adults, 12 young, school-going boys). They were asked to share their opinions on the merits, demerits, and the future of vegetable farming.

## Survey-6

This survey included the vegetable dealers. A total of 10 vegetable dealers working in Garampani and other collection centres were interviewed. The survey involved an unstructured interview and no questionnaire was prepared for this purpose. The respondents were asked mainly the following questions.

- i) How long have you been working as a vegetable dealer?
- ii) What is the average volume (value) of vegetables purchased annually?
- iii) Where do you supply the vegetables?
- iv) What is the state of external competition?
- v) What are the main problems in vegetable marketing?

## Survey-7

The following officials were interviewed to get information on the different technical aspects and the role of their institutions in promotion of vegetable farming.

- i) Senior Scientist, G.B. Pant University Research Centre, Majhera
- ii) The Director, a plant breeder, a pathologist, and an entomologist at Vivekanand Lab (ICAR), Almora
- iii) Assistant Registrar in the Office of the Additional Registrar of Cooperatives, Uttarakhand, Almora
- iv) Officer In-charge of Vegetable Extension in the Directorate of Horticulture, Hills, Chaubatia
- v) Deputy Director, Horticulture and District Horticulture Officer, Nainital
- vi) Administrator, Mandi Society, Haldwani

The surveys were conducted from March 1997 to July 1997.

## Analyses of Data

The information collected was analysed from different points of view as given below.

1. Information obtained through Surveys-1, 5, 6, and 7 was qualitative in nature and has been used to form the opinions and suggestions expressed in this report.
2. Survey-2 was designed to study the crop mix in the area under study and the factors determining the crop patterns and level of commercialisation. The information obtained through this survey has been reviewed in Chapter: 4.
3. Very useful data were collected and analysed through Survey-3.
  - i) All the figures of costs and revenues were expressed by the respondents in terms of a reference field—the area of which was measured in *nali*. These figures were converted into hectares using the following relationship: 1 hectare = 49.42 *nali* (i.e.  $20 \times 2.471$ )

- ii) Cost sheets were prepared for all the crops showing their per hectare cultivation cost and input and labour components. The cost sheets were prepared for all the villages in a columnar form.
- iii) Although it is expected that the yield of a particular crop in different villages may vary due to fertility and climatic differences, the input and labour costs are not expected to vary in a significant manner. The questionnaire demands a high degree of cooperation and intelligence in estimation from the respondents so the possibilities of bias and error due to different reasons cannot be ruled out. Therefore, before estimating the fair average cost, the figures that significantly differed in the group were ignored as biased. A figure was considered biased if it did not fall within the following limits:

$$\text{Limits} = \bar{X} \pm t_{0.05, n-1} \sigma / \sqrt{n-1}$$

- iv) Having eliminated the biased responses, the fair average cost of each crop was estimated. The findings have been discussed in Chapter 6.
  - v) The revenue and other relevant figures were also analysed in the same manner. The detailed methodology and results have been discussed in subsequent chapters
4. The information collected through Survey-4, was used to study the factors influencing the level of commercialisation, and impact of commercialisation on migration and animal husbandry. Multiple Regression Models were used for this purpose. The detailed methodology has been discussed in the chapters concerned.

# Annex 2

## Questionnaires Used in the Survey\*

### Questionnaire 1 : Study of the Transformation Process

#### Research Method : Unstructured Interview

#### Respondents : Socially Active, Educated and Experienced Villagers

1. Name of the Respondent .....
2. Village .....
3. Age of Respondent .....
4. Occupation of the Respondent .....
5. Educational Status .....
6. Which are the different commercial crops cultivated in your village ?  
.....
7. When was the cultivation of commercial crops started in your village? [approximate duration] .....
8. Which commercial crop was adopted first? .....
9. Which commercial crops were adopted subsequently (give chronological details as far as possible) .....
10. Whether any commercial crop was discontinued after some time? If yes, why? .....
11. Whether your village was the first to adopt commercial crops in this area? If other villages had previously adopted them, name of the villages .....
12. After how many years did your village adopt the commercial crop compared to their being adopted by other villages in the area .....
13. Who was the first farmer adopting commercial crops in your village? Give possible details about him .....
14. Whether other farmers adopted them immediately or whether these crops expanded gradually in the village? .....
15. If these expanded gradually, which segment of farmers was prompt in adopting them ? .....
16. Whether any group [e.g. male/female, age group etc] opposed the commercial crops during the initial years? Which group supported these crops ?  
.....
17. How and why did the cultivation of commercial crops start in Garampani area [as per your information and opinion]? .....
18. What are the reasons for the popularity of vegetable crops in Garampani area in comparison to other mountain areas? .....
19. What was the role of government and other institutions in popularising commercial crops .....

\* Only light editing has been carried out.

20. What are the benefits derived by farmers in this area through adopting commercial crops and how has it affected their living standards? .....
21. If there is any demerit in commercial crops please explain ?.....
22. What difficulties were encountered by farmers in adopting commercial crops ? .....
23. What was the marketing arrangement during the initial period and how has it been changed over time? .....
24. Whether the farmers in your village continued with the same crops for a long time or whether they are adopting new crops — which are the crops adopted recently? .....
25. Whether any farmer in your village takes more interest in adopting new crops? If yes, give all details possible.....
26. Whether any farmer in your village takes more interest in adopting new agricultural techniques? If yes, give all details possible. ....
27. In your opinion, what steps should be taken to promote commercial crops in this area? .....

## Part C : Crop Structure of the Village

Group	Crop	% of land under cultivation	Main/ Subsidiary Crop	Commercial crop/ conventional crop	Name of joint crops	Duration <sup>1</sup>
(1) Rabi (Sown in winter)	1. Wheat 2. Barley 3. Peas 4. Masoor 5. Mustard 6. Spinach					
(2) Kharif (Early summer)	1. Paddy 2. Capsicum 3. Chillies 4. Tomatoes 5. Beans					
3. Jaid (Late Summer) sown in the rainy season)	1. Madua 2. Soyabean 3. Cauliflower 4. Urd 5. Gahat 6. Ghangora 7. Potatoes 9. Peas					

<sup>1</sup> Duration for which the crop is being cultivated in the village



**Questionnaire 2 : Study of the Crop Structure**  
**Research Method : Structured Interview**  
**Respondents : Young Educated Farmers, Male/Female**

**Part A : Particulars of the Respondent**

1. Name of the Respondent -
2. Address -
3. Age -
4. Educational Qualification
5. Occupation (besides agriculture, if any)

**Part B : Particulars of the Village**

1. Name of the village -
2. Distance of the village from the motor road? -
3. Nearest market from the village and its distance? -
4. Number of families in the village? -
5. Distribution of the families according to their caste [percentage]?
  - i) Brahmin (purohit) -
  - ii) Brahmin [farmers] -
  - iii) Rajput -
  - iv) Scheduled Castes -
  - v) Scheduled Tribes -
6. Population of the village [estimated]? -
7. Altitude [estimated]? -
8. Whether irrigation facilities are available or not? -
9. Percentage of irrigated land? -

**Questionnaire 3 : Analysis of Cost and Yield**  
**Research Method : Structured Interview**  
**Respondents : Farmer Family, Male and Female Both**

Part A : Particulars of the Respondent :

1. Name of the Respondent -
2. Address -
3. Age -
4. Educational Qualification -
5. Occupation (besides agriculture, if any) -

Part B : Particulars of the Reference Field

1. Area of the reference field? -
2. Irrigated/non-irrigated? -
3. Main crops grown in reference field? -
  - (a) Rabi crops -
  - (b) Kharif crops -
  - (c) Jaid crops -
4. Category of the reference field according to its productivity? :
  - (a) Very good -
  - (b) Good -
  - (c) Average -
  - (d) Bad -

Part C : Particulars of the Reference Crop

[Please use separate sheets for different reference crops. Choose only main crops for the reference]

1. Name of the reference crop? -
2. Name of the joint crops? -
3. Sowing time? -
4. Harvesting time from - to -?

Part D : Inputs

S.No.	Input	Source	Quantity	Rate	Total Cost
1.	Seed/Plants?				
2.	Organic manure?				
3.	Chemical Fertilizers :?				
	(a) Urea?				
	(b) DAP? (Diammorium Phosphate)				
	(c) NPK? (Nitrogen, Phosphorus, and Potasium)				
	(d) Any other?				
4.	Fungicides/Insecticides				
5.	Any other				



### Part E : Labour Requirements?

S.No.	Activities	Total labour hours/days		Cost	
		Male	Female	Ploughman	Children
1.	Ploughing?				
	First				
	Second				
	Third				
	Other (e.g. Danela)				
2.	Sowing/Planting?				
3.	Micro-irrigation?				
4.	Weeding?				
	First				
	Second				
	Third				
	Fourth				
	Fifth				
	Sixth				
	any other				
5.	Manuring?				
6.	Spraying of Fungicides/ Insecticides?				
7.	Harvesting/ Collection?				
8.	Processing?				
9.	Any other?				

### Wage rates and working hours :

(a) Male worker?	-	-
(b) Female worker?	-	-
(c) Ploughman?	-	-
(d) Children?	-	-

### Part F : Yield Estimates

1.	Expected yield of the reference crop?	
	(a) under normal conditions	-
	(b) under most favourable conditions	-
	(c) under most adverse conditions	-
2.	Expected yield of the joint crops?	
	(a)	-
	(b)	-
	(c)	-

### Part G : Marketing Costs

S.No.	Particular	Cost under different market options				
		I option	II option	III option	IV option	V option
		Rs	Rs	Rs	Rs	Rs

1. Processing cost?
2. Packing cost?
- Material?
- Labour?
3. Freight?
5. Fare?
6. Mandi (market) charges?
7. Any other?

Part H : Value of the Output

1. Purchase price (in the case of cereals)? -
2. Selling price (in the case of commercial crops)?

S. No.		On the basis of last year's experience		
		Minimum	Maximum	Average
1.	Local Market			
2.	Haldwani Mandi			
3.				
4.				
5.				
3.	Value of the joint crops?			
	(a) -			
	(b) -			
	(c) -			

**Questionnaire 4 : Study of Commercialisation at Household Level**  
**Research Method : Structured Interview**  
**Respondents : Head/Most Active Member of the Family**

1. Name of the Respondent? -
2. Village? -
3. Particulars of the Family?
  - i) Total members? -
  - ii) Members residing in village? -
  - iii) Members residing in village in working age group (14-60)?
    - (a) male -
    - (b) female -
  - iv) Particulars of migrant members :

S.No.	Age	Education	Occupation	Duration of migration
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4. The educational level of the most educated member of the family who is engaged in agriculture? -
5. Educational qualifications of the head of the family? -
6. Other occupations of the family members residing in the village besides agriculture, if any ?-
7. Total land holding?
8. Cultivated area?
  - own -
  - hired -
9. Whether the land is in consolidated form? -
10. What is the average distance of the water source from the fields? -
11. Number of cattle?
  - (a) cow -
  - (b) ox -
  - (c) buffalo -
  - (d) horse -
  - (e) goat -
12. Total area cultivated with different crops during this year? -
  - (A) *Rabi* crops
    - i) Wheat -
    - ii) Pea -
    - iii) Others -
  - (B) *Kharif* crops
    - i) Paddy -
    - ii) Capsicum -
    - iii) Tomato -
    - iv) Chilli -
    - v) Others -

Questionnaire 4 : Study of Commercialization of Households

Research Method : Structured Interview

Respondents : Head/Most Active Member of the Household

1. Name of the Respondent?
2. Village?
3. Particulars of the Family?
4. Total members?
5. Members residing in village?
6. Members residing in village in working age group (14-60)?
7. Any other?

Part H : Value of the Output

1. Purchase price (in the case of cereals)?
2. Selling price (in the case of cereals)?

Division of Output

No.	Minimum	Maximum	Average
1. Local Market			
2. The educational level of the most educated member of the family who is engaged in agriculture?			
3. Educational qualifications of the head of the family?			
4. Other occupations of the family members residing in the village besides agriculture?			
5. Total land holdings?			
6. Cultivated area?			
7. own			
8. hired			
9. Whether the land is in consolidated form?			
10. What is the average distance of the water source from the fields?			
11. Number of cattle?			