

# The Survey: Steps, Objective Formulation, and Plan

# 1. Introduction: The Role of Surveys in Investigation

In the biological sciences—particularly in plant production—the survey is a fundamental investigative tool

Used to collect structured information from individuals, professionals, or institutions

Applications in Plant Production:

- Agricultural diagnostics

- Evaluation of farming practices

- Market studies for agricultural products

- Feasibility studies for agro-industrial projects

- Socio-economic assessments related to crop production

# L3 Level Competencies Expected

Students are expected to:

- Understand surveys theoretically

- Design, implement, and analyze questionnaire-based investigations

- Use computer tools for survey management

This competence is essential for:

- Undergraduate dissertations and future theses

- Professional integration (consultancy, extension services, agribusiness)

- Decision-making in socio-professional projects

## 2. Learning Objectives of the Chapter

By the end of this chapter, students should be able to:

1. Understand the logic and structure of a survey-based investigation
2. Formulate clear, measurable, and relevant survey objectives
3. Identify and organize the key steps of a survey
4. Develop a coherent survey plan adapted to plant production studies
5. Prepare for the use of survey software in data collection and analysis

## 3.1 Definition of a Survey

*A survey is a systematic method of collecting information from a defined population using structured tools—primarily questionnaires or interview guides—with the objective of describing, explaining, or analyzing a phenomenon.*

- In plant production, surveys often focus on:
- Cropping systems and input use (fertilizers, pesticides, seeds)
- Yield constraints and farmers' perceptions
- Market access and commercialization
- Decision-making processes in agriculture

## 3.2 Key Characteristics of a Scientific Survey

### A valid survey must be:

- Objective: based on clearly defined research questions
- Structured: following a logical sequence of steps
- Reproducible: allowing similar studies under similar conditions
- Analyzable: producing data suitable for statistical or qualitative analysis

### Why These Matter:

- Ensures scientific rigor
- Enables comparison across studies
- Supports evidence-based conclusions
- Facilitates peer review and validation

# 4.1 Importance of Objective Formulation

*The formulation of objectives is the FOUNDATION of the entire survey process.*

- Poorly defined objectives lead to:
  - → Irrelevant questions
  - → Unusable data
  - → Invalid conclusions
  -
- A well-formulated objective guides:
  - → The choice of respondents
  - → The structure of the questionnaire
  - → The type of data analysis

## 4.2 Types of Survey Objectives

### General Objective:

- States the overall purpose of the survey
- Example: To analyze farming practices and constraints affecting tomato yield in a semi-arid region
- Provides direction and scope

### Specific Objectives:

- Break down the general objective into precise components
- Each corresponds to one or more questions
- Examples:
  - - Identify irrigation techniques
  - - Assess fertilizer application levels
  - - Determine awareness of improved seeds
  - - Evaluate economic constraints

## 4.3 Characteristics of Good Objectives

Objectives should be:

CLEAR — Unambiguous in meaning and scope

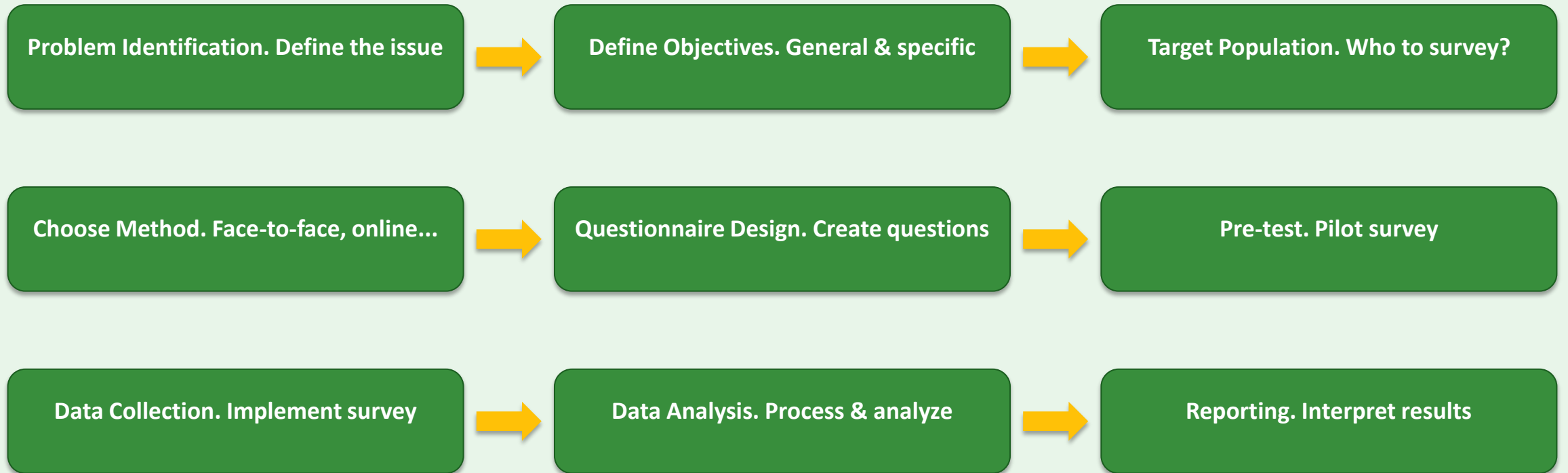
RELEVANT — Linked to the research problem

MEASURABLE — Observable through survey data

REALISTIC — Adapted to time and resources

The SMART Framework applies to survey objectives in plant production research

# 5. The Main Steps of a Survey — Overview



# Step 1: Identification of the Problem

This step consists of clearly defining the issue to be investigated

Example:

"Low yield of cereal crops despite favorable climatic conditions"

The problem must be:

Clearly delimited

Contextualized:

- Geographically (location, region)
- Agronomically (crops, systems)
- Socio-economically (farmers, market)

# Steps 2-3: Objectives & Target Population

## Step 2: Define Objectives

- Based on the identified problem
- Formulate general objective
- Derive specific objectives
- Ensure alignment with research goals

## Step 3: Identify Population

- Population = group for data collection
- Examples in plant production:
  - - Farmers
  - - Agricultural technicians
  - - Cooperative managers
  - - Input suppliers
- Define by: location, crop type, farm size

# Step 4: Choice of Survey Method

| Method           | Advantages                        | Considerations               |
|------------------|-----------------------------------|------------------------------|
| Face-to-face     | High response rate, detailed data | Time-consuming, costly       |
| Telephone        | Quick, lower cost                 | Limited depth, sampling bias |
| Online (Digital) | Fast, auto-storage, easy analysis | Requires tech access         |
| Mail             | Wide reach, anonymous             | Low response rate, slow      |

# Step 5: Questionnaire Design

The questionnaire translates objectives into QUESTIONS

Types of Questions to Include:

Identification questions: region, farm size, crop type

Technical questions: practices, inputs, yields

Economic questions: costs, income, market access

Perception/opinion questions: constraints, expectations

Questions must be: Clear, Concise, Neutral (non-leading), Adapted to respondents' level

# Step 6: Pre-testing the Questionnaire

*Before large-scale data collection, the questionnaire must be tested on a SMALL SAMPLE to validate its effectiveness.*

- Purposes of Pre-testing:
  - → Identify unclear or ambiguous questions
  - → Estimate response time required
  - → Correct logical inconsistencies
  - → Test technical functionality (for digital surveys)
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- This step prevents costly errors during full data collection

# Steps 7-8-9: Collection, Analysis & Reporting



## 6.1-6.2 Definition of a Survey Plan

*A survey plan is a STRUCTURED DOCUMENT that organizes all stages of the survey in a coherent and logical manner. It serves as a ROADMAP for the investigation.*

- Components of a Survey Plan:
  - 1. Title of the survey
  - 2. Background and justification
  - 3. Objectives (general and specific)
  - 4. Target population and sampling method
  - 5. Survey tools (questionnaire, software)
  - 6. Data collection procedure
  - 7. Data analysis methods
  - 8. Timeline
  - 9. Expected outcomes

## 6.3 Example: Survey Plan for Plant Production

**TITLE:** Survey on irrigation practices in greenhouse vegetable production

**OBJECTIVE:**

To evaluate the efficiency and constraints of irrigation systems used by greenhouse farmers

**POPULATION:**

Greenhouse vegetable producers in a defined agricultural zone

**TOOL:**

Structured questionnaire using survey software

**ANALYSIS:**

Descriptive statistics and comparative analysis

# 7. Importance of Surveys for Academic & Professional Projects

## Academic Benefits:

- Conduct reliable undergraduate research
- Prepare for master's and doctoral studies
- Develop methodological rigor
- Build data analysis skills

## Professional Benefits:

- Analyze feasibility of agricultural projects
- Carry out market studies
- Conduct diagnostic surveys
- Bridge scientific knowledge with field realities
- Essential tool for extension services

# 8. Conclusion

*The survey is a CENTRAL TOOL in investigative methodology, particularly in applied fields such as plant production.*

- Key Takeaways:
- ✓ Understanding survey steps is essential
- ✓ Correctly formulating objectives guides the entire process
- ✓ Developing a coherent survey plan ensures success
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- Through guided learning and computer-based survey tools, students acquire:
- → Academic rigor
- → Practical skills transferable to research and professional contexts