

The People's Democratic Republic of Algeria
Ministry of Higher Education and Scientific Research
University Center of Mila
Faculty of Natural and Life Sciences
Department of Biological and Agronomic Sciences
DW 01 Correction– Methods And Practices Of Investigation

Exercise 1:

1. **b** (To collect numerical data that can be statistically analyzed).
2. **c** (When they want to understand the reasons behind farmers' resistance).
3. **d** (KoboToolbox is listed under digital support for Quantitative/Field data, whereas NVivo and Atlas.ti are for qualitative analysis).
4. **b** (Inductive).
5. **c** (Thematic analysis is associated with Qualitative surveys).

Exercise 2:

1. **Method:** Quantitative. **Justification:** The objective is to measure frequency and estimate market data (numerical) which aligns with conducting market studies.
2. **Method:** Qualitative. **Justification:** The goal is to explore traditional knowledge and local practices, requiring contextual understanding and in-depth data.
3. **Method:** Quantitative. **Justification:** The researcher is measuring yield (numerical data) and assessing variability linked to management practices.
4. **Method:** Qualitative. **Justification:** The focus is on identifying perceived risks, barriers, and understanding the "why" behind decision-making processes.

Exercise 3:

a) Closed-ended (Quantitative) questions:

1. Do you apply chemical fertilizers to your vegetable crops? (Yes / No)
2. How many fertilizer applications do you perform per season? (1–2 / 3–4 / >4)
3. What type of fertilizer do you mainly use? (NPK / Urea / Organic / Mixed)
4. What is the average fertilizer dose per hectare? (kg/ha categories)

b) Open-ended (Qualitative) questions:

1. What factors influence your choice of fertilizer type?
2. What difficulties do you face in managing fertilizer use?

Part A:

- **Type:** Open-ended.
- **Reason:** Because "perceptions" are subjective and require explanation of meanings and experiences, which is the domain of qualitative research.
- **Example Question:** "How have changes in the weather patterns over the last 10 years affected your decision-making regarding crop planting?" (Or any similar open-ended question).

Part B:

- **Tool:** KoboToolbox (or Google Forms/LimeSurvey).
- **Reasoning:** The text specifically mentions "Mobile data collection (KoboToolbox)" and "Online questionnaires (Google Forms)" as tools that support quantitative surveys by improving data accuracy and handling large samples.

Exercise 4:

Quantitative Question: What percentage of farmers have adopted the new wheat variety? OR How many hectares are currently planted with this variety?

Method: Distribute a structured questionnaire to a large sample of farmers to calculate adoption rates.

Qualitative Question: Why are farmers refusing to adopt the new variety despite its high yield? OR What are the specific barriers or risks perceived by farmers regarding this variety?

Method: Conduct in-depth interviews or focus groups with a smaller group of farmers to explore their motivations, fears, or decision-making processes.

Synthesis: By combining these, the researcher identifies how many people are adopting (Quantitative) and explains the reasons why adoption is low (Qualitative), providing a complete picture for the extension program.

Exercise 5: Mini Case Study (Analysis & Method Choice)

- **Quantitative indicators:**

- Percentage of farmers adopting the new variety
- Average yield per hectare
- Frequency of irrigation
- Production costs

- **Qualitative aspects:**

- Farmers' satisfaction with the variety
- Perceived advantages and disadvantages
- Cultural or market preferences
- Barriers to adoption

- A **mixed-methods approach** is useful because quantitative data show *how many* farmers adopted the variety and its impact on yield, while qualitative data explain *why* farmers accept or reject it, providing deeper understanding for decision-making.