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 03 Correction– Methods And Practices Of Investigation

Exercise 1

Answer Key

1. B — A systematic method of collecting information from a defined population using structured tools such as questionnaires.

Rationale: This matches the definition of a survey as a systematic method of collecting information from a defined population using structured tools, primarily questionnaires or interview guides.

2. C — Subjective.

Rationale: A valid scientific survey must be objective, structured, reproducible, and analyzable. Subjectivity contradicts the principle of being based on clearly defined research questions.

3. B — Genetic modification of plant DNA in laboratories.

Rationale: Surveys focus on cropping systems, yield constraints, market access, and decision-making processes. Laboratory-based genetic experiments fall outside the scope of survey methodology.

4. B — It allows similar studies to be conducted under similar conditions for validation.

Rationale: Reproducibility supports evidence-based conclusions, facilitates peer review and validation, and enables comparison across studies.

Exercise 2: True or False

Answer Key

1. TRUE.

Poorly defined objectives lead to irrelevant questions, unusable data, and invalid conclusions

2. FALSE.

Correction: Specific objectives should be precise and measurable, not broad or vague. Each specific objective corresponds to one or more questions and must break down the general objective into clear, actionable components.

3. TRUE.

The general objective states the overall purpose of the survey and provides direction and scope for the entire investigation.

4. FALSE.

Correction: A well-formulated objective directly guides the choice of respondents, the structure of the questionnaire, and the type of data analysis to be performed. Objectives are the foundation upon which all subsequent survey decisions are built.

5. TRUE.

Objectives should be Clear, Relevant, Measurable, and Realistic the SMART framework.

Exercise 3

Model Answers

Scenario A: Declining wheat yields in a semi-arid region

General Objective: To analyze the farming practices and environmental factors contributing to declining wheat yields among farmers in the semi-arid region.

Specific Objectives:

1. To identify the irrigation techniques and water management practices currently used by wheat farmers in the study area.
2. To assess the types and quantities of fertilizers and pesticides applied by farmers during the last three growing seasons.
3. To determine farmers' perceptions of climate-related constraints affecting wheat production.

Scenario B: Low adoption of greenhouse technology among vegetable producers

General Objective: To evaluate the barriers to adoption of greenhouse technology among vegetable producers and identify factors that influence their decision-making.

Specific Objectives:

1. To assess the level of awareness and knowledge of greenhouse technology among vegetable producers.
2. To identify the economic and technical constraints that prevent farmers from adopting greenhouse systems.
3. To evaluate the role of extension services and training programs in promoting greenhouse technology adoption.

Exercise 4

#	Justification	Method
1	Remote rural area with limited internet access requires in-person engagement to ensure high response rates and detailed data collection about irrigation practices.	A — Face-to-face
2	Extension agents are spread across provinces; telephone surveys offer quick data collection at lower cost while reaching a geographically dispersed population.	B — Telephone
3	Large-scale operators with smartphones and reliable internet connectivity make online surveys the fastest and most cost-effective option with automatic data storage.	C — Online
4	A nationwide assessment requiring respondent anonymity is best served by mail surveys, which offer wide reach and ensure confidentiality.	D — Mail
5	Limited budget and two-week timeline with mobile phone availability make telephone surveys the most practical choice — quick, lower cost, and appropriate sampling reach.	B — Telephone

Exercise 5

Part A: Sample Questions

1. Identification Questions:

1. In which region is your olive grove located? (Open-ended)
2. What is the total area of your olive grove in hectares? (Numeric)

2. Technical Questions:

3. What pruning method do you apply to your olive trees? (Multiple choice: traditional, intensive, none)
4. What types of fertilizers do you use, and how frequently are they applied? (Multiple choice + frequency scale)

3. Economic Questions:

5. What are your estimated annual production costs per hectare for olive cultivation? (Numeric)
6. Through which channels do you sell your olive products? (Multiple choice: cooperative, direct, wholesale, export)

4. Perception/Opinion Questions:

7. What do you consider to be the main constraint affecting your olive yield? (Open-ended)
8. What improvements or support would you expect from agricultural services? (Open-ended)

Part B: Sample Evaluation

Selected Question: "What is the total area of your olive grove in hectares?"

- Clear — The question uses precise language and specifies the unit of measurement (hectares), leaving no room for ambiguity.
- Concise — It asks for a single piece of information in one sentence without unnecessary elaboration.
- Neutral — The question does not suggest any preferred answer or lead the respondent in any direction.
- Adapted — All olive farmers understand the concept of land area measurement, making the question appropriate for the target population.

Exercise 6

Component	Model Response
1. Title	Survey on the Use of Organic Fertilizers Among Cereal Crop Producers in the Northern Highlands
2. Background	Cereal production in the northern highlands faces declining soil fertility. Organic fertilizers are promoted as a sustainable alternative, but their adoption rate among local farmers remains poorly documented. This survey will fill that knowledge gap.
3. General Objective	To evaluate the extent, patterns, and determinants of organic fertilizer use among cereal crop producers in the northern highlands.
4. Specific Objectives	(1) Identify the types of organic fertilizers used by cereal farmers. (2) Assess farmers' knowledge and perceptions of organic fertilizers. (3) Determine the economic and logistical barriers to organic fertilizer adoption.
5. Population	Cereal crop producers (wheat, barley) in the northern

Component	Model Response
	highlands, defined by farm size (1–20 hectares). Stratified random sampling across three districts.
6. Survey Tools	Structured questionnaire administered via face-to-face interviews, supplemented by digital data entry using survey software (e.g., KoboToolbox).
7. Procedure	(1) Pre-test questionnaire with 10 farmers. (2) Train five enumerators. (3) Conduct field interviews over three weeks. (4) Digitize and clean data daily.
8. Analysis	Descriptive statistics (frequencies, percentages, means) using SPSS or R. Cross-tabulation of fertilizer use by farm size and district. Chi-square tests for association between variables.
9. Expected Outcomes	A profile of organic fertilizer usage patterns, identification of key barriers to adoption, and evidence-based recommendations for extension services and agricultural policy.

Exercise 7

Part A: How Pre-testing Could Have Prevented Each Issue

Issue 1 (Technical terminology): A pre-test conducted on a small sample of farmers would have revealed that the technical terms in question 8 were unfamiliar to respondents. The researchers could have simplified the language or added explanatory notes before distributing the survey to 500 farmers.

Issue 2 (Excessive response time): Pre-testing allows researchers to estimate the average time required to complete the questionnaire. If the pre-test had shown that completion takes over 45 minutes, the team could have reduced the number of questions or streamlined the survey structure.

Issue 3 (Redundant questions): A pilot survey would have exposed the logical inconsistency of having two consecutive questions on the same topic. The researchers could have removed or merged these questions to eliminate confusion and contradictory responses.

Issue 4 (Technical malfunction): Pre-testing includes testing the technical functionality of digital survey forms on the actual devices used by respondents. This would have revealed the compatibility issues with older mobile phones, allowing the team to optimize the form or provide alternative devices.

Part B: Matching Purposes to Issues

1. Identify unclear or ambiguous questions → Matches Issue 1
2. Estimate response time required → Matches Issue 2
3. Correct logical inconsistencies → Matches Issue 3
4. Test technical functionality (for digital surveys) → Matches Issue 4

Part C: Why Pre-testing Is Critical

Pre-testing is a critical step because it serves as a quality control mechanism before committing resources to full-scale data collection. Even though it requires additional time, a pilot survey on a small sample can identify costly errors such as ambiguous questions, excessive length, logical flaws, and technical failures that would otherwise compromise the validity of the entire dataset. The cost of pre-testing is minimal compared to the cost of collecting unusable data from hundreds of respondents. Ultimately, pre-testing ensures that the final survey produces reliable, analyzable data that supports sound conclusions and credible recommendations.