

Exercise 1: Multiple Choice Questions

Select the best answer for each question. Circle or underline your choice.

1. Which of the following best defines a survey in the context of plant production research?
 - An unstructured conversation with farmers about their daily routines
 - A systematic method of collecting information from a defined population using structured tools such as questionnaires
 - A laboratory experiment designed to test soil quality
 - A review of existing literature on agricultural practices
2. Which of the following is NOT a key characteristic of a valid scientific survey?
 - Objective
 - Structured
 - Subjective
 - Reproducible
3. In plant production, surveys commonly focus on all of the following EXCEPT:
 - Cropping systems and input use
 - Genetic modification of plant DNA in laboratories
 - Yield constraints and farmers' perceptions
 - Market access and commercialization
4. Why is reproducibility an important characteristic of a scientific survey?
 - It reduces the cost of the survey
 - It allows similar studies to be conducted under similar conditions for validation
 - It eliminates the need for a target population
 - It guarantees high response rates

Answers: 1. _____ 2. _____ 3. _____ 4. _____

Exercise 2: True or False

Determine whether each statement is true or false. If false, rewrite the statement to make it correct in the space provided.

1. Poorly defined survey objectives can lead to irrelevant questions and unusable data.

Answer: _____

Correction (if false): _____

2. Specific objectives should be broad and vague to allow for flexibility during data analysis.

Answer: _____

Correction (if false): _____

3. The general objective states the overall purpose of the survey and provides direction and scope.

Answer: _____

Correction (if false): _____

4. A well-formulated objective has no influence on the choice of respondents or the structure of the questionnaire.

Answer: _____

Correction (if false): _____

5. The SMART framework applies to survey objectives in plant production research.

Answer: _____

Correction (if false): _____

Exercise 3:

For each of the following research problems, formulate one general objective and three specific objectives. Ensure your objectives follow the SMART criteria (Clear, Relevant, Measurable, Realistic).

Scenario A: Declining wheat yields have been observed across several farms in a semi-arid region over the past three years. Researchers want to investigate the possible causes and contributing factors.

General Objective:

Specific Objectives:

1. _____
2. _____
3. _____

Scenario B: A new greenhouse technology has been introduced to vegetable producers, but adoption rates remain low. The agricultural extension service wants to understand the barriers to adoption.

General Objective:

Specific Objectives:

4. _____
5. _____
6. _____

Exercise 4: Matching and Justification Exercise

Match each scenario (1–5) with the most appropriate survey method (A–D). Then provide a brief justification for your choice in the space below.

Code	Survey Method
A	Face-to-face interview
B	Telephone survey
C	Online (digital) survey
D	Mail survey

1. A team needs to collect detailed information about irrigation practices from small-scale farmers in a remote rural area with limited internet access.

Match: _____ Justification: _____

2. A university researcher wants to quickly gather opinions from 200 agricultural extension agents spread across multiple provinces.

Match: _____ Justification: _____

3. An agro-industrial company needs to survey large-scale greenhouse operators who are known to use smartphones and have reliable internet connectivity.

Match: _____ Justification: _____

4. A government agency is conducting a nationwide assessment of pesticide usage and requires anonymity for all respondents.

Match: _____ Justification: _____

5. A graduate student has a limited budget and two weeks to collect data on farmer satisfaction with a cooperative program in a region where most farmers have mobile phones.

Match: _____ Justification: _____

Exercise 5: Practical Design Exercise

You are tasked with designing a structured questionnaire to investigate the following research problem:

Research Problem: *Farmers in a Mediterranean region are experiencing reduced yields in olive groves despite adequate rainfall. The survey aims to identify farming practices, input usage, and perceived constraints that may explain this decline.*

Part A: Draft at least two questions for each of the following categories:

1. Identification Questions (region, farm size, olive grove area, years of experience)

Q1: _____

Q2: _____

2. Technical Questions (practices, inputs, yields)

Q3: _____

Q4: _____

3. Economic Questions (costs, income, market access)

Q5: _____

Q6: _____

4. Perception/Opinion Questions (constraints, expectations)

Q7: _____

Q8: _____

Part B: For any two of your questions above, explain how each question satisfies the four criteria for effective survey questions:

- Clear — unambiguous and easy to understand
- Concise — brief and to the point
- Neutral — non-leading and unbiased
- Adapted — appropriate for the respondents' knowledge level

Selected Question 1: _____

Analysis: _____

Selected Question 2: _____

Analysis: _____

Exercise 6: Comprehensive Planning Exercise

Using the framework outlined in Section 6 of the chapter, develop a structured survey plan for the following topic. Complete each component in the space provided.

Topic: *A survey on the use of organic fertilizers among cereal crop producers in the northern highlands.*

Component	Your Response
1. Title of the Survey	
2. Background and Justification	
3. General Objective	
4. Specific Objectives (at least 3)	
5. Target Population and Sampling Method	
6. Survey Tools	
7. Data Collection Procedure	

Component	Your Response
8. Data Analysis Methods	
9. Expected Outcomes	

Complete the table above by writing your responses in the “Your Response” column. Aim for 2–3 sentences per component.

Exercise 7: Case Study Analysis

Read the following case study and answer the questions below.

Case Study: A team of agricultural researchers designed a questionnaire to study the adoption of improved seed varieties among maize farmers. They distributed the questionnaire to 500 farmers without conducting a pre-test. After collecting the data, they discovered the following issues:

- 35% of respondents left question 8 blank because the terminology was too technical
- Several farmers reported that the survey took over 45 minutes to complete
- Two consecutive questions asked about the same topic, leading to contradictory answers
- The digital survey form crashed on older mobile devices used by some farmers

Part A: For each of the four issues identified, explain how a pre-test could have prevented the problem. Use complete sentences.

Issue 1 (Technical terminology):

Issue 2 (Excessive response time):

Issue 3 (Redundant questions):

Issue 4 (Technical malfunction):

Part B: List the four purposes of pre-testing a questionnaire, as described in the chapter, and match each purpose to the corresponding issue from the case study.

1. Purpose: _____ → Matches Issue: _____
2. Purpose: _____ → Matches Issue: _____

3. Purpose: _____ → Matches Issue: _____

4. Purpose: _____ → Matches Issue: _____

Part C: In 3–4 sentences, explain why pre-testing is considered a critical step in the survey methodology, even when it requires additional time and resources.
