Agriculture in Hong Kong (Kam Tin)

Enquiry Skills Approach, Version 2.0

A. Planning and Preparation

Module
Combating famine

Enquiry Question

Hypothesis 1: ***Active farmland has higher soil fertility than abandoned farmland.***

Hypothesis 2: ***Traditional commercial farming has fewer crop types than organic commercial farming.***

Hypothesis 3: ***Organic farming costs higher human inputs than traditional farming.***

Hypothesis 4: ***The nearer the main route, the more the abandoned farmland.***

Key Concepts

Farming system	Commercial farming	Traditional farming	Organic farming
Human inputs	Monoculture	Multiple cropping	Speculation

Scope of the Study
1. Kam Tin

Basic Information
Date: _____ Time: _____ Season: _____

Think About

Is this an appropriate time/ season for fieldwork? Explain your answer.

List the safety risks when conducting farming fieldwork.

Field Work Plan

A1 Soil fertility
1. Identify abandoned farmland and active farmland on the route. Select three sampling points for each type of farmland by appropriate sampling method, and measure their soil fertility.
2. Measure the soil fertility with soil meters, and mark down the data like farming condition (E.g. planting, fallowing, fertilizing, etc.) and crop type in Table 1.1.
3. Lastly, locate the sampling farmlands on the map.

A2 Types of crop
1. Identify traditional commercial farming and organic commercial farming on the route. Count the types of crop in each farmland.
2. Distinguish the types of crop with the photo key provided and record in Table 1.2.
3. Locate the sampling farmlands on the map.

A3 Human Inputs
1. Observe and record the human inputs of traditional farming and organic farming. Record the data in Table 1.4.
2. Try to interview local farmers about the human inputs of their farms.
3. Draft your interniew questions in Table 1.3.

A4 Distribution of abandoned farmland
1. Identify the distribution of abandoned farmland, active farmland and other landuses on the route.
2. According to the following instructions, colour the landuses on the map.
   a. Brown colour for abandoned farmland
   b. Green colour for acttive farmland
   c. Red colour for other landuses.

B. Data Collection

Complete the following table.

Primary Data Items	To Examine				Data Collection Method				Equipment Required (Number on the equipment checklist)
	H1	H2	H3	H4	Observation	Counting	Measuring	Interview	
1. Soil fertility (N, P, K)									
2. Number of crop types									
3. Human inputs									
4. Distribution of abandoned farmland									

Equipment Checklist

Items	Quantity	Checked	Returned
1. Base map (Individual)	x1	❑	❑
2. Clipboard (Individual)	x1	❑	❑
3. Compass (Individual)	x1	❑	❑
4. Colour pencils	x1	❑	❑
5. Soil fertility meter (N)	x1	❑	❑
6. Soil fertility meter (P)	x1	❑	❑
7. Soil fertility meter (K)	x1	❑	❑

Data Recording Sheet

Table 1.1a Soil fertility (Abandoned farmland)

Sampling point	Sampling Method: _____			Soil fertility level
	Nitrogen (mg/kg)	Phosphorus (mg/kg)	Potassium (mg/kg)	
1				
2				
3				

Table 1.1b Soil fertility (Active farmland)

Sampling point	Farming condition (e.g. planting, fallowing, fertilizing, etc.)	Crop type	Sampling Method: _____			Soil fertility level
			Nitrogen (mg/kg)	Phosphorus (mg/kg)	Potassium (mg/kg)	
1						
2						
3						

Table 1.2 Number of crop types

Sampling Point	Traditional Commercial farming	Number of crop types
1.		
2.		
3.		
4.		
5.		
6.		
	Average	

Sampling Point	Organic Commercial farming	Number of crop types
1.		
2.		
3.		
4.		
5.		
6.		
	Average	

Table 1.3 Draft of interview questions

Question	Traditional farming	Organic farming
1.		
2.		
3.		

Table 1.4 Human inputs

	Traditional farming	Organic farming
1. Labour		
2. Capital		
3. Technology (e.g. irrigation, machines, fertilizers, pest control, weed control, etc.)		
4. Market		
5. Transport		
6.Institutional factors		

Think About
List the possible errors when collecting data.

C. Data Processing, Presentation and Analysis

1. According to Table 1.5, convert the data of soil fertility into a 5-point-scale mark.
2. Referring to Soil Fertility Overall Score Formula, calculate the overall score for each sampling point. Referring to Table 1.6, assess the level of soil fertility.
3. According to Table 1.2, calculate the average types of crop per farmland.
4. Draw the most appropriate diagrams to present the collected data.
5. According to the map, calculate the distance percentage of abandoned farmland of each segment and record in Table 1.7.

Table 1.5 Soil fertility score (5-point-scale)

Score	Nitrogen (mg/kg)	Phosphorus (mg/kg)	Potassium (mg/kg)
5	> 150	> 40	> 200
4	> 120-150	> 20-40	> 150-200
3	> 90-120	> 10-20	> 100-150
2	> 60-90	> 5-10	> 50-100
1	≦60	≦5	≦50

Table 1.6 Soil fertility level

Overall score	Soil fertility level
≧ 4.5	Rich
≧ 3.5 − < 4.5	Slightly rich
≧ 2.5 − < 3.5	Moderate
≧ 1.5 − < 2.5	Slightly poor
< 1.5	Poor

Table 1.7 Distance percentage of abandoned farmland

Segment	Distance of abandoned farmland			Distance of route	Distance percentage
	(Left-hand side)	(Right-hand side)	(Total Distance)		
AB					
BC					
CD					
DE					

Think about
List the merits and demerits of the chosen graphs or diagrams.

D. Interpretation and Conclusion

1. Does the fieldwork result support the Hypothesis 1: ***Active farmland has higher soil fertility than abandoned farmland***? Support your conclusion with the collected data and graphs.

2. Does the fieldwork result support the Hypothesis 2: ***Traditional commercial farming has fewer crop types than organic commercial farming***? Support your conclusion with the collected data and graphs.

3. Does the fieldwork result support the Hypothesis 3: ***Organic farming costs higher human inputs than traditional farming***? Support your conclusion with the collected data and graphs.

4. Does the fieldwork result support the Hypothesis 4: ***The nearer the main route, the more the abandoned farmland***? Support your conclusion with the collected data and graphs.

E. Evaluation

1. Other than the data collected in this course, suggest other enquiry question, data and information you might need for a field work in the field site. Explain your answer.