Class : 9th

Chapter : 4

CROP ROTATION AND CROPPING PATTERN

Exercise Solved

1. What is the primary goal of crop rotation?

a) Increase soil erosion

✓ b) Maintain soil fertility and reduce pests

c) Grow the same crop every year

d) Reduce biodiversity

2. Which crop is known for adding nitrogen to the soil?

a) Wheat

b) Rice

✓ c) Legumes (e.g., beans, peas)

d) Corn

3. What is a common cropping pattern in the Indus Plains of Pakistan?

✓ a) Wheat-Rice rotation

b) Maize-Potato rotation

c) Barley-Fruit rotation

d) Cotton-Sugarcane rotation

4. Which factor does not affect cropping patterns?

stepacademyofficial.com

a) Climate

b) Market demand

c) Soil type

✅ d) Farmer's favorite color

5. What is the main benefit of intercropping?

a) Increases soil erosion

b) Reduces biodiversity

c) Requires less labor

✅ d) Optimizes resource use and reduces pests

6. Which practice helps prevent soil erosion in hilly areas?

a) Overgrazing

b) Deforestation

✅ c) Terraced farming

d) Mono cropping

📝 Solved Short Questions

1. What is crop rotation, and why is it important?

Crop rotation is the practice of growing different types of crops on the same land in sequential seasons. It is important because it helps maintain soil fertility, reduces the risk of pests and diseases, and improves crop yields.

2. Name two crops that are commonly grown in a wheat-rice rotation.

stepacademyofficial.com

Two crops commonly grown in a wheat-rice rotation are wheat (during Rabi season) and rice (during Kharif season).

3. How do legumes benefit the soil in a crop rotation system?

Legumes (like peas, beans) fix atmospheric nitrogen in the soil through root nodules, improving soil fertility and reducing the need for chemical fertilizers.

4. What is the role of market demand in determining cropping patterns?

Market demand influences which crops farmers choose to grow. If a crop has high demand and better market price, farmers are more likely to include it in their cropping pattern to increase profit.

5. How does crop rotation help in pest and disease management?

Crop rotation interrupts the life cycles of pests and diseases that target specific crops, reducing their buildup in the soil and preventing outbreaks.

Long Question 1: Explain the principles of crop rotation.

Introduction:

Crop rotation is a planned sequence of growing different crops on the same land across different seasons. It is a key method of sustainable agriculture that helps maintain soil health and improve crop yield.

Principles of Crop Rotation:

Alternate Crops Based on Nutrient Needs:

Crops should be rotated in a way that heavy feeders (e.g., wheat, maize) are followed by crops that restore nutrients (e.g., legumes).

Include Leguminous Crops:

stepacademyofficial.com

Legumes fix atmospheric nitrogen in the soil, enriching it for the next crop.

Diversity of Crop Families:

Crops from different botanical families help break the pest and disease cycle.

Depth of Roots:

Alternate deep-rooted crops (e.g., sugarcane) with shallow-rooted crops (e.g., vegetables) to utilize nutrients at all soil levels.

Adaptation to Climate and Soil:

Rotation should consider regional climate and soil type for best crop performance.

Economic Value:

Cash crops can be alternated with food crops to balance income and food supply.

Benefits of Following Crop Rotation Principles:

- Maintains long-term soil fertility
- Reduces weeds, pests, and diseases
- Enhances crop productivity
- Reduces dependence on chemical fertilizers
- Promotes biodiversity in farming

🕮 Long Question 2: Compare the cropping patterns of the Indus Plains and the Mountainous Regions of Pakistan.

Indus Plains Cropping Pattern:

Geography: Fertile plains of Punjab and Sindh

stepacademyofficial.com

Irrigation: Canal-based irrigation available

Major Crops: Wheat, rice, sugarcane, cotton

Cropping Pattern:

- Wheat-Rice rotation (most common)
- Double cropping possible due to irrigation

Mountainous Region Cropping Pattern:

Geography: Hilly terrain of Khyber Pakhtunkhwa, Gilgit-Baltistan

Irrigation: Mostly rain-fed, limited canal system

Major Crops: Maize, barley, fruits (apples, apricots), pulses

Cropping Pattern:

- Seasonal cropping depending on rainfall
- Use of terraced farming to prevent soil erosion

Comparison:

Feature	**Indus Plains**	**Mountainous Regions**
Land Type	Flat and fertile	Sloped and less fertile
Irrigation	Canal water	Mostly rainfall
Main Crops	Wheat, Rice, Cotton, Sugarcane	Maize, Barley, Fruits
Method	Mechanized	Manual or traditional
Cropping Intensity	High (2-3 crops/year)	Low (1-2 crops/year)

stepacademyofficial.com

🕮 Long Question 3: Discuss the factors that influence cropping patterns in Pakistan.

1. Climate:

Pakistan has varied climates (arid, semi-arid, and temperate). Crops like rice need hot and wet conditions, while wheat prefers cool and dry climates.

2. Soil Type:

Fertile alluvial soil in Punjab supports crops like wheat and sugarcane, while sandy soil in Sindh suits cotton.

3. Water Availability:

Regions with canal irrigation (like Punjab) support rice and sugarcane. In water-scarce areas, drought-resistant crops are grown (e.g., millet, barley).

4. Market Demand and Prices:

Crops with high market value (e.g., cotton for textile industry) are preferred by farmers due to better income.

5. Government Policies:

Subsidies on fertilizers, support prices, and import/export policies influence which crops are cultivated.

6. Technological Access:

Access to modern machinery, seeds, and storage affects farmer choices high-tech areas grow high-yield crops.

7. Cultural Preferences:

Local traditions and food habits also affect crop choice — for example, wheat is a staple and grown everywhere.

Conclusion:

stepacademyofficial.com

A combination of environmental, economic, and social factors determines cropping patterns in Pakistan. Smart planning ensures sustainable agriculture and food security.

stepacademyofficial.com