# 4. IMPROVEMENT IN FOOD RESOURCES

## TEACHING TASK (Page 78 – 81)

### Multiple Choice Questions (MCQs)

**1)What is the primary purpose of applying fertilizers in crop production?**
**Answer:** b) To enhance soil fertility
**Solution:** Fertilizers are applied to provide essential nutrients (e.g., nitrogen, phosphorus, potassium) to the soil, improving its fertility and supporting healthy crop growth. Options a, c, and d are incorrect as they do not relate to the primary role of fertilizers.

**2) Which of the following is not a type of manure?**
**Answer:** c) Chemical fertilizer
**Solution:** Manure is organic material (e.g., compost, green manure, vermi-compost) used to enrich soil. Chemical fertilizers are synthetic, inorganic substances, not classified as manure.

**3) What is the primary purpose of intercropping?**
**Answer:** c) To enhance overall crop yield
**Solution:** Intercropping involves growing two or more crops together to maximize land use, improve nutrient utilization, reduce pest spread, and enhance overall yield. Options a, b, and d are incorrect as they do not align with intercropping's purpose.

**4) How do pesticides contribute to environmental pollution?**
**Answer:** d) By harming non-target species and polluting water sources
**Solution:** Pesticides can harm non-target organisms (e.g., pollinators, aquatic life) and contaminate water bodies through runoff, leading to environmental pollution. Options a, b, and c are incorrect as they do not describe pesticide-related pollution.

**5) Which method involves deep ploughing during summers to eradicate weeds and pests?**
**Answer:** c) Summer ploughing
**Solution:** Summer ploughing involves deep tillage during hot months to expose weeds, pests, and their larvae to sunlight and heat, reducing their population. Other options are unrelated to this practice.

**6) What is the primary reason for the storage of grains?**
**Answer:** b) To reduce agricultural losses
**Solution:** Grain storage prevents spoilage and damage from pests, moisture, and fungi, minimizing post-harvest losses. Options a, c, and d are not the primary reasons for storage.

**7) Which factor does not contribute to storage losses of grains?**
**Answer:** c) Proper drying techniques
**Solution:** Proper drying reduces moisture content, preventing fungal growth and spoilage, thus reducing storage losses. Options a, b, and d (moisture, pests, fungi) contribute to losses.

**8) What is the primary focus of crop protection management?**
**Answer:** c) Safeguarding crops from pests and diseases
**Solution:** Crop protection management involves practices (e.g., pesticide use, resistant varieties) to protect crops from pests, diseases, and weeds, ensuring healthy yields. Other options are not the primary focus.

**9) Which crop is not typically grown during the kharif season in India?**
**Answer:** b) Wheat
**Solution:** Kharif crops (e.g., paddy, soybean, maize) are sown during the monsoon (June–September). Wheat is a rabi crop, grown in the winter season (October–March).

**10) What is the primary nutrient derived from oilseeds?**
**Answer:** c) Fats
**Solution:** Oilseeds (e.g., soybean, mustard) are primarily grown for their oil content, which provides fats. Other nutrients like proteins may be present but are not the primary focus.

**Advanced Level Questions**

**More than One Answer Type**

**11) Which practices contribute to weed control in crop production management?**
**Answer:** a) Manual weeding, b) Use of resistant crop varieties, c) Summer ploughing, d) Proper seed bed preparation
**Solution:**

**Manual weeding**: Physically removing weeds prevents competition with crops.

**Resistant crop varieties**: These are bred to outcompete or resist weeds.

**Summer ploughing**: Exposes weed seeds and roots to heat, reducing their viability.

**Proper seed bed preparation**: Ensures a weed-free environment for sowing, reducing weed growth.

**12) What are examples of abiotic factors affecting grain storage mentioned in the text?**
**Answer:** a) Inappropriate moisture levels, b) High temperatures, c) Improper drying
**Solution:** Abiotic factors are non-living factors like inappropriate moisture levels, high temperatures, and improper drying, which cause spoilage or quality loss in stored grains. Fumigation is a biotic control method, not an abiotic factor.

**13) Which nutrient elements are commonly provided by fertilizers?**
**Answer:** a) Nitrogen, b) Phosphorus, c) Potassium, d) Iron
**Solution:** Fertilizers commonly supply macronutrients (nitrogen, phosphorus, potassium) and occasionally micronutrients like iron to support plant growth. All listed elements are relevant.

**Reason and Assertion Type**

**14) Assertion:** India's large and growing population, coupled with limited agricultural land availability, necessitates enhanced production efficiency to

meet increasing food demands sustainably.
**Reason:** It is necessary to improve food production efficiency in India.
**Answer:** Both Assertion and Reason are true, and the Reason correctly explains the Assertion.
**Solution:** The assertion highlights the need for efficient food production due to population growth and limited land. The reason restates this necessity, explaining why efficiency is critical.

**15) Assertion:** Improving crop varieties through methods like hybridization and genetic modification is crucial for enhancing yield potential, resilience to environmental stresses, and nutritional quality, contributing to sustainable food production.
**Reason:** What is the significance of crop variety improvement in food production?
**Answer:** Both Assertion and Reason are true, and the Reason correctly explains the Assertion.
**Solution:** The assertion outlines the benefits of crop variety improvement (higher yields, resilience, nutrition). The reason asks for its significance, which the assertion directly addresses.

**16) Assertion:** Nutrient management practices ensure optimal plant growth and yield by replenishing essential nutrients in the soil, enhancing soil fertility, and promoting healthy crop development, ultimately contributing to increased food production.
**Reason:** Why are nutrient management practices like using manure and fertilizers essential in agriculture?
**Answer:** Both Assertion and Reason are true, and the Reason correctly explains the Assertion.
**Solution:** Nutrient management (using manure, fertilizers) replenishes soil nutrients, ensuring healthy crop growth and higher yields, as stated in the assertion. The reason aligns with this explanation.

**Matrix Matching Type**

**17) Match the following crop management practices with their descriptions:**
**Answer:**

Crop rotation – A

Intercropping – B

Mixed cropping – C

Biological control – D

**Solution:**

**Crop rotation (A)**: Planting different crops sequentially to maintain soil fertility and reduce pest buildup.

**Intercropping (B)**: Growing multiple crops in a specific pattern (e.g., maize with beans) to optimize yield and land use.

**Mixed cropping (C)**: Simultaneous cultivation of multiple crops (e.g., rice with fish) to diversify production.

**Biological control (D)**: Using natural predators or pathogens to manage pests without synthetic chemicals.

**Comprehension Type**

**18) Passage-based Questions:**

**i) What is the primary reliance of India's agriculture for water?**
**Answer:** C) Rain
**Solution:** The passage emphasizes that Indian agriculture relies on monsoon rains as the primary water source for crop growth.

**ii) What is the consequence of poor monsoon seasons on crop success?**
**Answer:** B) Decreased yields
**Solution:** The passage states that erratic monsoons and rainfall variability increase the risk of crop failures, leading to decreased yields.

**iii) What efforts are being made to ensure a steady water supply for crops?**
**Answer:** A) Expanding irrigation coverage
**Solution:** The passage describes efforts to expand irrigation (e.g., canal, drip, sprinkler systems) to ensure a steady water supply, mitigating monsoon unpredictability.

**LEARNERS TASK ( Page 81 – 84)**

**Multiple Choice Questions (MCQs)**

**1) What is the primary reason for the necessity to increase food production efficiency?**
**Answer:** c) To feed a growing population
**Solution:** Increasing food production efficiency is critical to meet the food demands of a growing population, especially in countries like India with limited arable land.

**2) Which of the following revolutions boosted food-grain production?**
**Answer:** c) Green Revolution
**Solution:** The Green Revolution introduced high-yielding varieties, fertilizers, and irrigation, significantly boosting food-grain production. Other revolutions (Blue: fisheries, Red: meat, Yellow: oilseeds) focus on different sectors.

**3) How does sustainable livelihood in agriculture combat hunger?**
**Answer:** c) By raising the incomes of agricultural workers
**Solution:** Sustainable livelihoods improve farmers' incomes through better yields and practices, enabling them to afford food, thus combating hunger. Other options are incorrect or unrelated.

**4) What is the primary focus of crop variety improvement?**
**Answer:** b) Enhancing crop yields and qualities
**Solution:** Crop variety improvement aims to develop varieties with higher yields, better quality, and resilience to stresses, not just diversity or monoculture.

**5) Which method involves crossing genetically different plants to incorporate desirable traits?**
**Answer:** b) Hybridization
**Solution:** Hybridization involves crossing genetically diverse plants to combine desirable traits (e.g., high yield, disease resistance). Other methods serve different purposes.

**6) Which agricultural practice is known to reduce the risk of crop failure?**
**Answer:** b) Intercropping
**Solution:** Intercropping diversifies crops in a field, reducing the risk of total

crop failure due to pests, diseases, or environmental stress. Monoculture increases risk, and others are less directly related.

**7) What is the primary advantage of organic farming?**
**Answer:** b) Minimization of chemical inputs
**Solution:** Organic farming emphasizes natural inputs (e.g., manure) and minimizes synthetic fertilizers and pesticides, promoting environmental sustainability.

**8) Which irrigation system draws water directly from rivers to supplement irrigation?**
**Answer:** c) Canals
**Solution:** Canals directly divert river water to fields for irrigation, unlike wells or tanks, which rely on groundwater or stored water.

**9) What is the primary purpose of using crop rotation?**
**Answer:** d) To maintain soil fertility
**Solution:** Crop rotation alternates crops to prevent nutrient depletion, maintain soil fertility, and reduce pest buildup. It does not promote monoculture or reduce yields.

**10) Which method involves growing two or more crops simultaneously on the same land?**
**Answer:** d) Mixed cropping
**Solution:** Mixed cropping involves growing multiple crops together on the same land (e.g., rice with fish), unlike intercropping (specific patterns) or rotation (sequential).

**Advanced Level Questions**

**More than One Answer Type**

**11) Which practices are categorized as part of crop protection management?**
**Answer:** a) Mechanical methods, b) Use of pesticides, d) Timely sowing of

crops
**Solution:**

**Mechanical methods**: Physical removal of pests or weeds.

**Use of pesticides**: Chemical control of pests and diseases.

**Timely sowing**: Prevents crops from being vulnerable to peak pest or weed cycles.

**Proper seed bed preparation**: While beneficial, it is more about crop establishment than direct protection.

**12) What are examples of nutrient management practices mentioned in the text?**
**Answer:** a) Use of manure, b) Application of fertilizers, c) Crop rotation
**Solution:**

**Use of manure**: Adds organic nutrients to soil.

**Application of fertilizers**: Provides synthetic nutrients.

**Crop rotation**: Helps recycle nutrients by alternating crops with different nutrient needs.

**Inter-cropping**: Enhances yield but is less directly tied to nutrient management.

**13) Which cropping patterns are discussed in the text?**
**Answer:** a) Mixed cropping, b) Inter-cropping, c) Crop rotation
**Solution:** The text mentions mixed cropping (multiple crops together), inter-cropping (specific patterns), and crop rotation (sequential planting). Monoculture is not emphasized as a pattern here.

**Reason and Assertion Type**

**14) Assertion:** Different cropping patterns such as mixed cropping, intercropping, and crop rotation contribute to maximizing agricultural output by reducing the risk of crop failure, efficient nutrient utilization, and pest and disease management.
**Reason:** What role do cropping patterns play in maximizing agricultural output?
**Answer:** Both Assertion and Reason are true, and the Reason correctly

explains the Assertion.
**Solution:** The assertion details how cropping patterns enhance output through risk reduction, nutrient use, and pest management. The reason directly addresses their role, aligning with the assertion.

**15) Assertion:** Crop protection management is essential in agriculture to safeguard crops from weeds, insect pests, and diseases, preventing yield losses and ensuring successful harvests to meet food demands.
**Reason:** Why is crop protection management crucial in agriculture?
**Answer:** Both Assertion and Reason are true, and the Reason correctly explains the Assertion.
**Solution:** The assertion explains the importance of crop protection in preventing yield losses. The reason asks why it's crucial, which the assertion answers.

**16) Reason:** What are the challenges associated with the storage of grains in agriculture?
**Assertion:** Storage of grains in agriculture faces challenges such as losses due to biotic and abiotic factors, including pests, fungi, inappropriate moisture levels, and temperatures, highlighting the importance of effective storage practices to maintain grain quality and viability.
**Answer:** Both Assertion and Reason are true, and the Reason correctly explains the Assertion.
**Solution:** The assertion lists challenges (pests, fungi, moisture, temperature) affecting grain storage. The reason asks about these challenges, which the assertion addresses.

**Matrix Matching Type**

**17) Match the following nutrient management methods with their descriptions:**
**Answer:**

Organic farming – A

Green manure – B

Fertilizers – C

Cultural control – D

**Solution:**

**Organic farming (A)**: Minimizes chemical inputs, using organic manures and farm waste.

**Green manure (B)**: Uses specific plants (e.g., legumes) plowed into soil to enhance fertility.

**Fertilizers (C)**: Supply essential nutrients like nitrogen, phosphorus, and potassium.

**Cultural control (D)**: Adjusts practices (e.g., rotation, planting dates) to reduce pest pressure.

**Comprehension Type**

**18) Passage-based Questions:**

**i) Where do plants obtain carbon and oxygen from?**
**Answer:** C) Air
**Solution:** The passage states plants extract carbon and oxygen from the air for growth. ii) **Which nutrients are needed in large quantities by plants?**
**Answer:** A) Nitrogen, Phosphorus, and Potassium
**Solution:** The passage identifies nitrogen, phosphorus, and potassium as macronutrients required in large amounts, unlike micronutrients (zinc, iron, manganese).

**iii) What is the significance of nutrient management for plants?**
**Answer:** B) It ensures balanced growth and resilience
**Solution:** The passage compares nutrient management to a balanced diet, emphasizing its role in ensuring plant growth and resilience.