

Exercises Types of crop plants

1. Explain why legumes are particularly valuable in agriculture. Address nitrogen fixation and its importance for the soil.

Answer: Legumes are valuable because they live in symbiosis with Rhizobium bacteria in root nodules, which fix atmospheric nitrogen (N_2) into plant-available ammonia (NH_3). This reduces the need for synthetic nitrogen fertilisers, enriches the soil with nitrogen, improves soil fertility for subsequent crops, and supports sustainable farming through crop rotation.

2. What are the advantages and disadvantages of greenhouse cultivation compared to open-field cultivation? Give at least two arguments for each.

Answer: Greenhouse advantages: year-round production independent of weather; controlled conditions (temperature, humidity, CO_2) enabling higher yields and pest control. Greenhouse disadvantages: high investment and operating costs (energy, infrastructure); potential dependency on artificial inputs and limited scalability. Open-field advantages: lower costs; suitability for large-scale staple crops. Open-field disadvantages: dependence on weather/climate; higher exposure to pests and diseases.

3. Explain the difference between seeding and planting in cultivation. Why do certain crops such as tomatoes or cabbage prefer using transplants (seedlings)?

Answer: Seeding = direct sowing of seeds into the field; planting = transferring pre-grown seedlings to the field. Tomatoes and cabbage are started as seedlings because they have a long growing season – pre-growing in a protected environment saves field time, improves uniformity, allows better establishment, reduces competition from weeds, and enables transplanting at the optimal stage.