GENERALIZED MANAGEMENT AND CULTIVATION PRACTICES FOR CEREALS:

A. RICE

Rice is a major cereal crop grown in tropical and subtropical regions. Proper management and cultivation practices are essential for achieving high yield and good grain quality.

1. Climate and Soil:

- Rice grows well in warm and humid climates with temperatures between 20–35°C.
- It requires high rainfall (100–200 cm) or adequate irrigation.
- The crop grows best in clay loam or loamy soils with good water-holding capacity and a pH of 5.5–7.0.

2. Land Preparation:

- The field is ploughed 2–3 times to obtain a fine tilth.
- Puddling (ploughing in standing water) is done to reduce water loss and control weeds.
- The land is leveled properly to maintain uniform water distribution.

3. Seed Selection and Treatment:

- Healthy and high-yielding seeds are selected.
- Seeds are often treated with fungicides or bio-fertilizers to protect against diseases and improve germination.

4. Nursery Raising:

- Rice seedlings are usually raised in a nursery bed.
- Seeds are sown in a prepared nursery and grown for about 20–30 days before transplanting.

5. Transplanting / Sowing:

- Transplanting method: Seedlings are transplanted into the main field at a spacing of about 20 × 10 cm or 20 × 15 cm.

- Direct seeding method: Seeds are directly sown in the field in some areas.

6. Nutrient Management:

- Application of organic manure (FYM or compost) improves soil fertility.
- Chemical fertilizers containing nitrogen (N), phosphorus (P), and potassium (K) are applied in recommended doses.
- Nitrogen is usually applied in split doses during crop growth.

7. Water Management:

- Rice requires continuous standing water (about 2–5 cm) during most growth stages.
- Proper drainage is necessary during ripening stage to avoid lodging and improve grain quality.

8. Weed Management:

- Weeds are controlled by hand weeding, mechanical weeding, or herbicides.
- Early weed control during the first 30–40 days is very important.

9. Pest and Disease Management:

- Common pests include stem borer, leaf folder, and brown planthopper.
- Diseases such as blast and bacterial leaf blight may occur.
- Control methods include resistant varieties, biological control, and recommended pesticides.

10. Harvesting:

- Rice is harvested when 80–85% of grains turn golden yellow.

- Harvesting is done manually with sickles or using combine harvesters.

11. Threshing and Storage:

- After harvesting, grains are threshed to separate them from the straw.
- The grains are dried to about 12–14% moisture and stored in clean, dry storage structures.

B. WHEAT:

Wheat is one of the most important cereal crops grown worldwide. It is a staple food crop and provides a major source of carbohydrates and protein. Proper management and cultivation practices help in improving wheat yield and grain quality.

1. Climate and Soil Requirements:

- Wheat grows best in a cool climate with temperatures between 10°C and 25°C.
- It requires well-drained fertile loamy soil with good organic matter content.

2. Land Preparation:

- The land is ploughed two or three times to obtain a fine seedbed.
- Leveling of the field ensures uniform irrigation and proper germination of seeds.

3. Seed Selection and Treatment:

- Healthy, disease-free and high-yielding seeds should be selected.
- Seeds are often treated with fungicides to prevent seed-borne diseases.

4. Sowing:

- Wheat seeds are generally sown using seed drills at proper spacing and depth.
- The recommended spacing helps in proper plant growth and nutrient utilization.

5. Nutrient Management:

- Application of organic manure such as farmyard manure improves soil fertility.
- Chemical fertilizers containing nitrogen, phosphorus, and potassium are applied based on soil fertility and crop requirement.

6. Irrigation Management:

- Wheat requires irrigation at critical growth stages such as crown root initiation, tillering, flowering, and grain filling stages.

7. Weed Management:

- Weeds compete with the crop for nutrients, water, and sunlight.
- They are controlled through hand weeding, mechanical methods, or herbicides.

8. Pest and Disease Management:

- Common pests include aphids and termites, while diseases such as rust and smut may affect the crop. Integrated pest management practices help control them.

9. Harvesting:

- Wheat is harvested when the grains become hard and the straw turns golden yellow.
- Harvesting can be done manually using sickles or by combine harvesters.

Adopting proper cultivation practices including good land preparation, balanced fertilization, irrigation, and pest control helps improve wheat productivity and ensures better grain quality.

C. MAIZE:

1. Climate and Soil:

- Maize grows well in warm climates with temperatures between 21°C and 30°C.
- It requires well-drained fertile soil with pH between 5.5 and 7.5.
- Adequate sunlight and moderate rainfall are ideal for growth.

2. Land Preparation:

- Plough the field 2–3 times to obtain a fine tilth.
- Remove weeds and crop residues.
- Level the field to ensure uniform irrigation.

3. Seed Selection and Sowing:

- Select high-yielding and disease-resistant maize varieties.
- Seed rate: about 20–25 kg per hectare.
- Spacing: 60–75 cm between rows and 20–25 cm between plants.

4. Fertilizer Application:

- Apply farmyard manure before sowing.
- Recommended NPK fertilizers are applied in split doses.
- Nitrogen is applied partly at sowing and partly during crop growth.

5. Irrigation:

- Maize requires regular irrigation at critical stages such as germination, tasseling and grain filling.
- Avoid water stagnation.

6. Weed Management:

- Manual weeding or mechanical weeding should be done 2–3 weeks after sowing.
- Mulching and herbicides can also be used to control weeds.

7. Pest and Disease Management:

- Common pests include stem borers and armyworms.
- Use integrated pest management practices.
- Use recommended pesticides only when necessary.

8. Harvesting:

- Maize is harvested when the grains become hard and the husks turn dry.
- Harvesting usually occurs 90–120 days after sowing depending on the variety.