

RABI CROPS

In-Depth Guide on Wheat Cultivation

1. Introduction

Wheat is a staple crop grown primarily in northern and central India. It is a Rabi crop requiring cool weather during its growth stages and warmer conditions at maturity. Major wheat-producing states include Uttar Pradesh, Punjab, Haryana, Rajasthan, and Madhya Pradesh.

2. Climate and Soil Requirements

- Temperature: Optimal sowing temperature is 10–15°C. During maturity, the temperature should range between 21–26°C.
- Rainfall: Requires 25–100 cm of annual rainfall. Excessive rain at maturity can lead to lodging and grain damage.
- Soil:
 - Well-drained loamy or clay loam soil.
 - Soil pH: 6.0–7.5.
 - Organic matter improves yield; fields should be plowed and leveled.

3. Seed Selection and Preparation

- Varieties:
 - HD 2967: High-yielding, resistant to rust.
 - PBW 343: Popular in northern plains.
 - WH 542: Suitable for late sowing.
- Seed Rate: 100–125 kg per hectare.
- Seed Treatment: Treat seeds with 2g of Carbendazim or Captan per kg to prevent fungal diseases.

4. Sowing Techniques

- Time of Sowing:
 - Northern plains: Early December to mid-January.
 - Central and Peninsular India: Late November to early January.
- Methods:
 - Line sowing with seed drills (preferred for even spacing).
 - Broadcasting in smaller fields.
- Depth and Spacing:
 - Sow at 4–6 cm depth.
 - Maintain 20 cm spacing between rows.

5. Fertilizer Management

- Base Fertilizers: Apply 120 kg Nitrogen (N), 60 kg Phosphorus (P), and 40 kg Potassium (K) per hectare.
- Application Timing:
 - 50% Nitrogen and full doses of Phosphorus and Potassium at sowing.

- Remaining Nitrogen in two splits during the tillering and flowering stages.

6. Irrigation Management

- Critical Stages:
 - Crown Root Initiation (CRI): 21–25 days after sowing.
 - Tillering Stage: 40–45 days after sowing.
 - Booting and Flowering: 60–75 days after sowing.
 - Grain Filling: 90–100 days after sowing.

Avoid over-irrigation to prevent lodging.

7. Pest and Disease Management

- Common Pests:
 - Aphids: Use systemic insecticides like Imidacloprid.
 - Termites: Treat soil with Chlorpyrifos at sowing.
- Diseases:
 - Rust (Yellow, Brown, Black): Use resistant varieties; spray Propiconazole at 0.1%.
 - Powdery Mildew: Spray Sulfur-based fungicides.
 - Loose Smut: Seed treatment with systemic fungicides.

8. Weed Control

- Common Weeds: Wild oats, Phalaris minor, Chenopodium.
- Methods:
 - Pre-emergence herbicides: Pendimethalin at 1 liter/ha.
 - Post-emergence: Apply Isoproturon or Clodinafop at 30–35 days after sowing.

9. Harvesting and Post-Harvest Management

- Harvesting:
 - Harvest when the crop turns golden yellow.
 - Use combine harvesters for large fields; sickles for smaller fields.
- Threshing: Use threshers to separate grain.
- Storage: Store grains in dry, pest-proof silos or bags with fumigation.

10. Yield and Economics

- Yield: 4–6 tons per hectare, depending on variety and management practices.
- Cost of Cultivation: ₹25,000–₹30,000 per hectare.
- Market Price: ₹2,200–₹2,500 per quintal (Minimum Support Price varies yearly).