



GENERALIZED MANAGEMENT AND CULTIVATION PRACTICES FOR GRAIN LEGUMES:

BLACK GRAM

Black gram is an important pulse crop grown widely in India for its protein-rich grains. Proper crop management improves yield and grain quality.

1. Climate Requirements

- Black gram grows well in **warm tropical and subtropical climates**.
- Optimum temperature: **25–35 °C**.
- Requires **moderate rainfall (600–800 mm)**.
- Sensitive to **waterlogging and frost**.

2. Soil Requirements

- Suitable soils: **loamy, clay loam, and black cotton soils**.
- Soil should be **well-drained**.
- Ideal soil pH: **6.5–7.5**.
- Avoid saline or poorly drained soils.

3. Land Preparation

- Plough the field **2–3 times** to obtain a fine tilth.
- Remove weeds and crop residues.
- Level the field properly to ensure uniform irrigation.
- Apply **farmyard manure (FYM) 5–10 tons/ha** before the final ploughing.

4. Season of Sowing

Black gram is grown in different seasons in India:

- **Kharif:** June – July

- **Rabi:** September – October (in southern India)
- **Summer:** January – February

5. Seed Rate and Sowing

- **Seed rate:** 15–25 kg/ha depending on variety.
- **Spacing:**
 - Row spacing: **30–45 cm**
 - Plant spacing: **10 cm**
- **Sowing depth:** 3–5 cm.
- Seeds can be sown by **broadcasting or line sowing**.

6. Seed Treatment

To prevent diseases and improve nitrogen fixation:

- Treat seeds with fungicides like **Carbendazim or Thiram (2–3 g/kg seed)**.
- Inoculate seeds with **Rhizobium culture** to enhance nitrogen fixation.

7. Manure and Fertilizer Management

Typical recommendation:

- **20 kg Nitrogen (N)**
- **40 kg Phosphorus (P₂O₅)**
- **20 kg Potassium (K₂O)** per hectare.

Organic manure such as **FYM or compost** improves soil fertility.

8. Irrigation Management

- Usually grown under **rainfed conditions**.

- If irrigation is available:
 - At **flowering stage**
 - At **pod formation stage**
- Avoid excess water to prevent root diseases.

9. Weed Management

- First weeding **15–20 days after sowing**.
- Second weeding **30–35 days after sowing**.
- Herbicides such as **Pendimethalin** can be used as pre-emergence.

10. Pest and Disease Management

Common pests:

- Aphids
- Pod borers
- Whiteflies

Common diseases:

- Yellow mosaic virus
- Leaf spot
- Powdery mildew

Use **resistant varieties, crop rotation, and proper field sanitation**.

11. Harvesting and Yield

- Crop duration: **70–90 days** depending on variety.
- Harvest when **Pods turn black and dry**.

- Average yield: **800–1200 kg/ha** under good management.

GREEN GRAM

Green gram, commonly known as mung bean, is an important pulse crop grown widely in India and other tropical countries. It is valued for its high protein content and easy digestibility. The crop also improves soil fertility by fixing atmospheric nitrogen through symbiotic bacteria.

1. Climate Requirements

Green gram is a warm-season crop and grows well in tropical and subtropical climates.

- Optimum temperature: **25–35°C**
- Requires **moderate rainfall (600–800 mm)**
- Sensitive to **frost and waterlogging**
- Suitable for **Kharif, Rabi, and Summer seasons**

2. Soil Requirements

Green gram can grow in a wide range of soils but performs best in:

- **Well-drained sandy loam to clay loam soils**
- Soil pH range: **6.2–7.2**
- Avoid **saline, alkaline, and waterlogged soils**

3. Land Preparation

- Plough the field **2–3 times** to achieve fine tilth.
- Remove weeds, stubbles, and previous crop residues.

- Level the land properly for uniform irrigation.
- Apply **Farmyard Manure (FYM)** at **5–10 tons/ha** during the last ploughing.

4. Season of Sowing

Green gram is cultivated in three main seasons in India:

- **Kharif:** June – July
- **Rabi:** September – October (mainly South India)
- **Summer:** January – February

5. Seed Rate and Sowing

- **Seed rate:** 12–20 kg per hectare
- **Row spacing:** 30–45 cm
- **Plant spacing:** 10 cm
- **Sowing depth:** 3–4 cm

Seeds are usually sown using **line sowing or seed drills**.

6. Seed Treatment

Seed treatment helps prevent diseases and improves nitrogen fixation.

- Treat seeds with fungicides like **Carbendazim** or **Thiram** at **2–3 g/kg seed**.
- Inoculate seeds with **Rhizobium culture** before sowing.

7. Manure and Fertilizer Management

Recommended fertilizer dose:

- **20 kg Nitrogen (N)**
- **40 kg Phosphorus (P_2O_5)**
- **20 kg Potassium (K_2O)** per hectare

Application of organic manure improves soil fertility and crop growth.

8. Irrigation Management

Green gram is mostly grown under rainfed conditions.

If irrigation is available, apply irrigation at:

- **Flowering stage**
- **Pod formation stage**

Avoid excessive irrigation as it can cause root diseases.

9. Weed Management

Weeds compete with crops for nutrients, water, and sunlight.

- **First weeding:** 15–20 days after sowing
- **Second weeding:** 30–35 days after sowing

Pre-emergence herbicides like **Pendimethalin** can be applied for effective weed control.

10. Pest and Disease Management

Common pests:

- Aphids
- Pod borers
- Whiteflies

Major diseases:

- Yellow mosaic virus
- Powdery mildew
- Leaf spot

Control methods include resistant varieties, crop rotation, and timely plant protection measures.

11. Harvesting

- Crop duration: **60–70 days**
- Harvest when **Pods turn brown or black and dry**
- Harvesting should be done carefully to avoid shattering of pods.

12. Yield

Under good management practices, green gram yields about **800–1000 kg per hectare**.