# मूंग (ग्रीन ग्राम) बीज PDM-139 के लिए कृषि क्रियाओं का पैकेज

## परिचय

मूंग (Vigna radiata L.), जिसे सामान्यतः ग्रीन ग्राम या मूंग बीन कहा जाता है, भारत में व्यापक रूप से उगाई जाने वाली एक महत्वपूर्ण दलहनी फसल है। **PDM-139 (सम्राट)** एक उच्च उत्पादन वाली, अल्प अवधि (शॉर्ट ड्यूरेशन) किस्म है, जिसे व्यावसायिक खेती के लिए विकसित किया गया है। यह खरीफ (मानसून) और ग्रीष्म दोनों मौसमों के लिए उपयुक्त है।

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### PDM-139 की मुख्य विशेषताएँ

- पौधे की ऊँचाई: 40-50 सेमी (अर्ध-सीधी, झाड़ीदार)
- पकने की अवधि: 60-65 दिन (शीघ्र पकने वाली)
- फलियों की लंबाई: 6-7 सेमी, प्रति फली 9-10 दाने
- दाने का प्रकार: चमकदार, मोटे हरे दाने
- रोग प्रतिरोध: पीला मोज़ेक वायरस (YMV) एवं पाउडरी मिल्ड्यू के प्रति सहनशील
- बीज दर: 8-10 किग्रा/हेक्टेयर
- औसत उपज: 900-950 किग्रा/हेक्टेयर (उन्नत विधियों के तहत)

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### लाभ

- फसल चक्र एवं मिश्रित खेती के लिए उत्कृष्ट
- बाजार में उच्च मांग एवं बेहतर मूल्य
- प्रोटीन से भरपूर (23-25%)
- नाइट्रोजन स्थिरीकरण द्वारा मिट्टी की उर्वरता में सुधार

- विभिन्न मौसमों में अनुकूल
- फलियों में समान दाना भराव एवं बेहतर गुणवत्ता

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## मिट्टी एवं जलवायु आवश्यकताएँ

### जलवायु

- तापमान: 20-30°C
- वर्षा: 400-600 मिमी वार्षिक
- आर्द्रता: मध्यम (अत्यधिक नमी से फफूंद रोग)
- मौसम:
    - खरीफ: जून-जुलाई
    - ग्रीष्म: मार्च-अप्रैल
    - रबी/शीत: सितंबर-अक्टूबर
- अवधि: 60-65 दिन

### मिट्टी

- प्रकार: सभी प्रकार की मिट्टी में उपयुक्त, अच्छी जल निकास वाली दोमट सर्वोत्तम
- बनावट: बलुई दोमट, चिकनी दोमट
- pH: 6.5-7.5
- जल निकास: जलभराव से जड़ सड़न एवं पौधे की मृत्यु
- उर्वरता: मध्यम; फास्फोरस एवं पोटाश पर अच्छी प्रतिक्रिया
- लवणता: क्षारीय/लवणीय मिट्टी के प्रति संवेदनशील

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## भूमि तैयारी

1. एक गहरी जुताई + 2-3 बार हैरो चलाना

2. खेत समतलीकरण
3. खरपतवार एवं अवशेष हटाना
4. बुवाई के समय पर्याप्त नमी
5. बुवाई से 7-10 दिन पूर्व तैयारी पूर्ण करें
6. मानसून में 15-20 सेमी ऊँची मेड़/बेड बनाएं

**उन्नत किस्म – PDM-139 (सम्राट)**

| विशेषता | विवरण |
|---|---|
| पौधे की ऊँचाई | 40-50 सेमी |
| पकने की अवधि | 60-65 दिन |
| दाना प्रकार | मोटा, चमकदार हरा |
| बीज दर | 8-10 किग्रा/हेक्टेयर |
| उपज क्षमता | 900-1000 किग्रा/हेक्टेयर |
| रोग सहनशीलता | YMV प्रतिरोधी |
| प्रोटीन | 23-25% |

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**बीज दर एवं बुवाई**

**बीज दर**

| विधि | बीज दर (किग्रा/हे.) | दूरी |
|---|---|---|
| छिटकवां | 10-12 | यादृच्छिक |
| कतार बुवाई | 8-10 | 30×10 सेमी |

| विधि | बीज दर (किग्रा/हे.) | दूरी |
|---|---|---|
| ड्रिल द्वारा | 8-10 | 30×10 सेमी |

**बीज गुणवत्ता मानक**

- शुद्धता: 98%
- अंकुरण: 85%
- नमी: 8-10%
- 1000 दाना वजन: 30-35 ग्राम

**बुवाई समय**

| मौसम | समय |
|---|---|
| खरीफ | जून-जुलाई |
| ग्रीष्म | मार्च-अप्रैल |
| रबी | सितंबर-अक्टूबर |

- न्यूनतम मिट्टी तापमान: 20°C
- पर्याप्त नमी आवश्यक

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**बीज उपचार**

**रासायनिक उपचार**

- थायरम या कार्बेन्डाजिम @ 2 ग्राम/किग्रा बीज
- 24 घंटे छाया में सुखाएं

**जैव उर्वरक उपचार**

- राइजोबियम: 10 मि.ली./किग्रा बीज
- पीएसबी: 10 मि.ली./किग्रा बीज
- 24 घंटे में बुवाई करें

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**खाद एवं पोषण**

**उर्वरक सिफारिश**

| उर्वरक | मात्रा (किग्रा/हे.) | समय |
|---|---|---|
| डीएपी | 25-35 | बुवाई के समय |
| एमओपी | 7-13 | बुवाई के समय |
| यूरिया | 0-25 | आवश्यकता अनुसार |

**सिंचित: 35 किग्रा DAP + 13 किग्रा MOP**

**वर्षा आधारित: 25 किग्रा DAP + 7 किग्रा MOP**

**जैविक खाद**

- गोबर खाद: 3-5 टन/हे.
- वर्मी कम्पोस्ट: 1-2 टन/हे.

**सूक्ष्म पोषक तत्व**

- जिंक: 5 किग्रा/हे.
- बोरॉन: 1 किग्रा/हे.
- आयरन: 10 किग्रा/हे.

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**सिंचाई प्रबंधन**

- कुल आवश्यकता: 300-400 मिमी
- खरीफ: 1-2 पूरक सिंचाई
- ग्रीष्म: 3-4 सिंचाई
- रबी: 0-1 सिंचाई

### महत्वपूर्ण अवस्थाएँ

- अंकुरण (0-15 दिन)
- फली बनना (35-45 दिन)
- दाना भराव (45-60 दिन)

### विधि

- ड्रिप सिंचाई सर्वोत्तम
- मेड़ सिंचाई उपयुक्त
- ओवरहेड सिंचाई से बचें

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### खरपतवार प्रबंधन

- 25-30 दिन पर निराई
- 45 दिन पर दूसरी निराई
- पेंडीमेथालिन 1.0 किग्रा/हे. (प्री-इमर्जेंस)
- 2,4-D @ 0.5 किग्रा/हे.

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### कीट प्रबंधन

| कीट | लक्षण | नियंत्रण |
|---|---|---|
| तना मक्खी | पौधा सूखना | इमिडाक्लोप्रिड उपचार |

| कीट | लक्षण | नियंत्रण |
|---|---|---|
| थ्रिप्स | फूल झड़ना | प्रोफेनोफोस स्प्रे |
| लीफ हॉपर | पत्तियाँ पीली | डाइमिथोएट स्प्रे |
| फली छेदक | फली नुकसान | सायपरमेथ्रिन |

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## रोग प्रबंधन

| रोग | नियंत्रण |
|---|---|
| पीला मोज़ेक | प्रतिरोधी किस्म, इमिडाक्लोप्रिड |
| पाउडरी मिल्ड्यू | गंधक स्प्रे |
| पत्ती धब्बा | मैंकोजेब |
| जड़ सड़न | ट्राइकोडर्मा |

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## कटाई एवं भंडारण

- 60-65 दिन में तैयार
- 80% फलियाँ भूरी होने पर कटाई
- नमी 10-12%
- 5-7 दिन धूप में सुखाएं
- ठंडी, सूखी जगह पर भंडारण
- नीम पत्तियाँ मिलाएं

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## उपज

| **स्तर** | **उपज (किग्रा/हे.)** |
|---|---|
| • पारंपरिक | • 500-600 |
| • उन्नत | • 900-950 |
| • उच्च प्रबंधन | • 1000-1100 |

# Package of Practices for Moong (Green Gram) Seeds PDM-139

# Introduction

Moong (Vigna radiata L.), commonly known as green gram or mung bean, is an important pulse crop widely cultivated across India. PDM-139 (also called Samrat) is a high-yielding, short-duration variety developed for commercial cultivation. It is well-suited for both Kharif (monsoon) and summer seasons.

**Key Characteristics of PDM-139:**

- Plant height: 40-50 cm (semi-erect, bushy)
- Maturity period: 60-65 days (quick maturity)
- Pod length: 6-7 cm with 9-10 seeds per pod
- Grain type: Shiny, bold green grains
- Disease resistance: Tolerant to Yellow Mosaic Virus (YMV) and powdery mildew
- Seed rate: 8-10 kg/hectare
- Average yield: 900-950 kg/ha under improved practices

**Benefits:**

- Excellent for crop rotation and intercropping systems
- High market value with strong demand
- Protein-rich pulse crop (23-25% protein)
- Improves soil fertility through nitrogen fixation
- Multiple season adaptability
- Uniform pod filling and grain quality

# Soil and Climate Requirements

## Climate

- **Temperature**: Thrives in warm climate with 20-30°C temperature range
- **Rainfall**: Requires 400-600 mm annual rainfall
- **Humidity**: Moderate humidity; excessive moisture causes fungal diseases
- **Season**: Kharif (June-July), Summer (March-April), Winter/Rabi (September-October)
- **Growing Period**: 60-65 days to maturity

## Soil

- **Type**: Suitable for all soil types; performs best in well-drained loamy soils
- **Texture**: Adaptable to clay loam, sandy loam, and loam soils
- **pH**: 6.5-7.5 (neutral to slightly alkaline) is ideal
- **Drainage**: Requires well-drained soils; waterlogging causes plant death and root rot
- **Fertility**: Moderate fertility sufficient; responds well to phosphorus and potassium
- **Salinity**: Sensitive to saline and alkaline soils

# Land Preparation

1. **Initial Ploughing**: One deep ploughing followed by 2-3 harrowings
2. **Field Levelling**: Ensure proper levelling for uniform water retention and growth
3. **Weed Removal**: Remove stubble, stones, and perennial weed roots thoroughly
4. **Moisture Status**: Field should have adequate moisture at sowing time
5. **Timing**: Complete land preparation 7-10 days before sowing
6. **Bed Formation**: For better drainage in monsoon, make 15-20 cm raised beds

# Improved Varieties

## PDM-139 (Samrat) - Recommended Variety

| Characteristic | Details |
|---|---|
| **Plant Height** | 40-50 cm |
| **Maturity** | 60-65 days |
| **Grain Type** | Bold, shiny green |
| **Seed Rate** | 8-10 kg/ha |
| **Yield Potential** | 900-950 kg/ha (900-1000 kg/ha under optimum management) |
| **Disease Tolerance** | YMV resistant, powdery mildew tolerant |
| **Pod Length** | 6-7 cm |
| **Seeds per Pod** | 9-10 |
| **Protein Content** | 23-25% |
| **Market Value** | Premium (bold grain quality) |

# Seed Rate and Sowing

## Seed Rate

| Sowing Method | Seed Rate (kg/ha) | Spacing |
|---|---|---|
| **Broadcasting** | 10-12 | Random |
| **Line Sowing (30 cm rows)** | 8-10 | 30 cm × 10 cm |
| **Dibbling (Line Sowing with Drill)** | 8-10 | 30 cm × 10 cm |

**Seed Quality Standards:**

- Seed purity: Minimum 98%
- Germination: Minimum 85%
- Moisture content: 8-10%
- 1000-grain weight: 30-35 grams

## Sowing Time

| Season | Sowing Period | Remarks |
|---|---|---|
| **Kharif** | June-July | After onset of monsoon; subject to soil moisture |
| **Summer** | March-April | Requires assured irrigation |
| **Rabi** | September-October | In southern and central India; no irrigation needed |

**Soil Temperature**: Minimum 20°C required for seed germination
**Soil Moisture**: Adequate soil moisture essential for uniform germination

## Sowing Methods

**1. Line Sowing (Recommended)**

- Sow in rows spaced 30 cm apart
- Maintain plant spacing of 8-10 cm within rows (achieved through thinning at 25-30 DAS)
- Depth: 3-4 cm
- Seed rate: 8-10 kg/ha
- Advantages: Better weed management, easier harvesting, improved yield

**2. Seed-cum-Fertilizer Drill Sowing (Best Practice)**

- Use precision seed-cum-fertilizer drill for simultaneous seed and fertilizer placement
- Row spacing: 30 cm

- Plant spacing: 10 cm (automatic adjustment)
- Depth: 3-4 cm
- Seed rate: 8-10 kg/ha
- Advantages: Uniform seeding depth, optimal plant population, precise fertilizer placement, reduced seed rate

**3. Broadcasting (Traditional)**

- Sow seeds uniformly across prepared field
- Light incorporation (2-3 cm depth)
- Seed rate: 10-12 kg/ha (higher due to losses)
- Suitable for rainfed areas with poor infrastructure

# Seed Treatment

**Chemical Treatment (Recommended):**

- Treat seeds with Thiram or Carbendazim @ 2 g/kg of seed
- Air-dry under shade for 24 hours

**Biological Inoculation (Post-Chemical Treatment):**

- After 24 hours from chemical treatment, inoculate with:
    - **Rhizobium culture**: 10 ml per kg of seed (improves nitrogen fixation)
    - **PSB (Phosphate Solubilizing Bacteria)**: 10 ml per kg of seed (enhances phosphorus availability)
- Allow 24 hours drying in shade before sowing

**Note**: Seeds should be sown within 24 hours of inoculation for best results.

# Manuring and Nutrition

## Baseline Fertility Recommendation

Soil test before planning nutrient schedule. General recommendations for medium fertility soil:

## Chemical Fertilizer Schedule

| Nutrient | Quantity (kg/ha) | Application Method | Timing |
|---|---|---|---|
| **DAP (Diammonium Phosphate)** | 25-35 | Basal (via seed drill or broadcast) | At sowing |
| **Potassium (MOP)** | 7-13 | Basal (broadcast or seed drill) | At sowing |
| **Urea (if required)** | 0-25 | Basal if soil N is low | At sowing |

**Standard Recommendation by Irrigation:**

- **Irrigated Condition**: 35 kg DAP + 13 kg MOP per hectare
- **Rainfed Condition**: 25 kg DAP + 7 kg MOP per hectare

## Organic Manure

- **FYM/Compost**: 3-5 tonnes/ha incorporated during land preparation
- **Vermicompost**: 1-2 tonnes/ha as supplementary nutrition
- **Green Manure**: If legume crop incorporated in previous season, reduce phosphorus application

## Micronutrient Application (if deficiency observed)

- **Zinc (Zn)**: 5 kg/ha (Zinc Sulfate)
- **Boron (B)**: 1 kg/ha (Borax) for pod setting improvement
- **Iron (Fe)**: 10 kg/ha (Ferrous Sulfate)

## Application Method

- DAP and MOP: Apply as basal through seed drill or broadcast before sowing
- For drip irrigation: Can mix water-soluble fertilizers
- Micronutrients: Spray @ 500-600 liters of water per hectare at pod initiation stage

**Note on Nitrogen:** Moong being a legume, obtains most nitrogen through Rhizobium symbiosis. Additional N application reduces nodulation; apply only if soil N is critically low.

# Irrigation Management

## Water Requirement

- **Total requirement**: 300-400 mm for full season
- **Kharif (Monsoon)**: Mostly rain-fed; 1-2 supplementary irrigations during dry spells
- **Summer**: 3-4 irrigations required
- **Rabi**: 0-1 irrigation (depends on rainfall)

## Irrigation Schedule

**Kharif Season (Rain-fed)**

| Critical Stage | Days After Sowing | Action |
|---|---|---|
| Germination | 0-15 DAS | Depends on rainfall; provide light irrigation if needed |
| Pod Setting | 35-45 DAS | Critical period; provide irrigation during dry spell |

| | | |
|---|---|---|
| Pod Filling | 45-60 DAS | Light irrigation if moisture deficit observed |

**Summer Season (Irrigated)**

| Stage | Days After Sowing | Irrigation Interval |
|---|---|---|
| Establishment | 0-30 | At sowing + 1 light irrigation |
| Growth Phase | 30-45 | Every 10-12 days |
| Pod Setting | 45-60 | Every 7-8 days (critical) |
| Pod Filling | 60-65 | No irrigation (harvesting stage) |

**Critical Periods for Irrigation:**

- Germination (0-15 DAS) - most critical
- Pod setting (35-45 DAS) - moisture stress reduces pod set
- Pod filling (45-60 DAS)

**Irrigation Method:**

- Drip irrigation: Most efficient (saves 40-50% water)
- Furrow irrigation: Recommended for rainfed areas
- Avoid overhead irrigation (promotes fungal diseases)

# Weed Management

## Pre-Sowing Weed Control

- Field preparation with ploughing and harrowing removes most weeds
- Remove perennial weed roots and rhizomes manually
- Clean seed bed essential

## Cultural Methods

- **Line Sowing**: Facilitates mechanical weed control
- **Hand Weeding**: At 25-30 DAS and 45-50 DAS
- **Hoeing**: 1-2 hoeing operations at 25-30 DAS and 45 DAS
- **Intercultivation**: For line-sown crops

## Chemical Weed Control

- **Pre-emergence**: Pendimethalin 1.0 kg/ha applied immediately after sowing and before irrigation
- **Post-emergence**: 2,4-D amine 0.5 kg/ha at 25-30 DAS for broad-leaved weeds

**Note**: Use chemical herbicides as per local regulations and recommendations. Always follow label instructions and pre-harvest intervals.

## Mechanical Control

- **Thinning**: At 25-30 DAS to maintain optimal plant spacing (10 cm)
- **Removal of weeds during thinning**
- **Mulching**: Organic mulch (2-3 cm) suppresses weeds

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# Pest Management

## Major Pests and Control Measures

| Pest | Symptoms | Management |
|---|---|---|
| **Stem Fly** | Larvae bore into main stem causing dead hearts; wilting of seedlings | Use resistant varieties (CoGG 912, CoGG 917); destroy alternative hosts like Solanum nigrum; seed soaking in Imidacloprid 17.8 SL @ 5 ml/kg seed |
| **Thrips** | Cause leaf silvering, flower drop, and reduced pod setting | Spray Profenofos 50% EC @ 1.5 ml/liter at flower initiation; Neem oil 3% + 1% soap solution |
| **Leaf Hopper** | Suck sap from leaves causing yellowing and wilting | Spray Dimethoate 30% EC @ 1.5 ml/liter; Neem oil 3% @ 50 ml per 10 liters water |
| **Bruchid Beetles (Storage Pest)** | Bore into stored seeds; reduce viability | Store with Phosphine fumigation; use hermetic containers; maintain 8-10% seed moisture |
| **Pod Borers** | Damage developing pods; reduce yield | Timely weeding removes pest hosts; spray Cypermethrin 10% EC @ 1.0 ml/liter at pod setting |

## Integrated Pest Management (IPM)

- Monitor fields regularly (twice weekly during growing season)
- Maintain field sanitation; remove alternative hosts

- Destroy pest-infested crop material
- Use yellow sticky traps for thrips and leaf hoppers (1 trap per 200 $m^2$)
- Encourage natural enemies and beneficial insects
- Use chemical pesticides only when economic threshold reached
- Follow PHI (Pre-harvest Interval) strictly: 21 days for most pesticides

**Economic Threshold for Pest Control:**

- Stem fly: 5% dead hearts
- Thrips: 2-3 thrips per flower
- Leaf hopper: 3-4 insects per leaf

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# Disease Management

## Major Diseases

| Disease | Symptoms | Management |
|---|---|---|
| **Yellow Mosaic Virus (YMV)** | Yellowing of leaves with mosaic pattern; severe stunting; reduced pod setting | Use resistant variety (PDM-139 is resistant); control vector (whitefly) by spraying Imidacloprid 17.8 SL @ 50 ml in 200 liters water; remove infected plants immediately |
| **Powdery Mildew** | White powder on leaves, stems, and pods; severe in dry weather | Spray Sulfur dust 80% WP @ 25 kg/ha or Wettable Sulfur @ 2.5 kg/ha; Tridemorph 50% EC @ 2.0 ml/liter; improve field ventilation |
| **Leaf Spot (Cercospora)** | Brown circular spots on leaves with concentric rings; leaf drop | Remove infected leaves; improve drainage; spray Mancozeb 75% WP @ 2.0 kg/ha starting at pod setting |
| **Root Rot (Fusarium/Sclerotium)** | Wilting and yellowing; root blackening; poor nodulation | Avoid waterlogging; use resistant varieties; practice crop rotation (2-3 years); apply Trichoderma to seed or soil @ 5 ml per kg seed |
| **Anthracnose** | Small circular spots on leaves and pods; progressive defoliation | Practice crop rotation; remove infected material; spray Copper Oxychloride 50% WP @ 2.5 kg/ha |

## Disease Prevention

- Use disease-free, certified seed with quality testing
- Practice 2-3 year crop rotation; avoid moong-to-moong cultivation
- Maintain field sanitation; remove crop residue
- Avoid overhead irrigation; use furrow or drip irrigation
- Monitor fields regularly during monsoon (high humidity period)
- Ensure proper drainage to prevent waterlogging

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# Harvesting and Post-Harvest Management

## Harvesting Stage

- **Maturity Indicator**: 80% pods turn brown/dark; leaves start shedding
- **Days to Harvest**: 60-65 days after sowing (as per PDM-139)
- **Moisture Content**: Pods should have 10-12% moisture
- **Harvesting Time**: Early morning when pod moisture is optimal

## Harvesting Method

1. **Manual Harvesting**:
    - Cut plants at ground level with sickles
    - Gather in heaps for sun-drying
    - Most labor-intensive but selective
2. **Mechanical Harvesting**:
    - Use combine harvesters in large holdings
    - Cost-effective for large areas
    - Faster operation

## Post-Harvest Operations

**1. Drying (Field Drying)**

- Spread harvested crop for 5-7 days in field
- Dry to 10-12% moisture content (seeds should not break when pressed)
- Turn occasionally for uniform drying

**2. Threshing**

- Use mechanical threshers or tractors for large-scale cultivation
- Manual beating for small quantities
- Separate seeds from pods and trash

**3. Cleaning and Grading**

- Remove foreign material, dust, and broken seeds
- Use winnowers and graders
- Sort by size for premium quality

**4. Seed Storage**

- Store in cool, dry place (15-20°C, <10% moisture)
- Use breathable jute bags or hermetic containers
- Add neem leaves to prevent insect attack
- Store with Phosphine fumigation for long-term storage
- Test viability annually

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# Yield and Quality

## Expected Yield

| Management Level | Yield (kg/ha) | Remarks |
|---|---|---|
| **Farmer Practice (Traditional)** | 500-600 | Without improved inputs |
| **Improved Technology (PDM-139)** | 900-950 | With recommended package of practices |
| **High Input (Optimal Management)** | 1000-1100 | With all inputs optimized; irrigated |

**Factors Affecting Yield:**

- Timely sowing (critical)
- Pest and disease management
- Weed management
- Irrigation schedule
- Nutrient availability
- Crop duration and weather

# ਮੂੰਗ (ਹਰੀ ਦਾਲ) ਬੀਜ PDM-139 ਲਈ ਖੇਤੀ ਪੈਕੇਜ

### ਜਾਣ–ਪਛਾਣ

ਮੂੰਗ (Vigna radiata L.), ਜਿਸਨੂੰ ਹਰੀ ਦਾਲ ਜਾਂ ਮੂੰਗ ਬੀਨ ਵੀ ਕਿਹਾ ਜਾਂਦਾ ਹੈ, ਭਾਰਤ ਵਿੱਚ ਵਿਸ਼ਾਲ ਪੱਧਰ ‘ਤੇ ਉਗਾਈ ਜਾਣ ਵਾਲੀ ਮਹੱਤਵਪੂਰਨ ਦਾਲੀ ਫਸਲ ਹੈ। PDM-139 (ਸਮਰਾਟ) ਇੱਕ ਉੱਚ ਉਪਜ ਵਾਲੀ ਅਤੇ ਛੋਟੀ ਮਿਆਦ ਦੀ ਕਿਸਮ ਹੈ ਜੋ ਵਪਾਰਕ ਖੇਤੀ ਲਈ ਵਿਕਸਿਤ ਕੀਤੀ ਗਈ ਹੈ। ਇਹ ਖਰੀਫ਼ (ਮਾਨਸੂਨ) ਅਤੇ ਗਰਮੀ ਦੋਹਾਂ ਮੌਸਮਾਂ ਲਈ ਉਚਿਤ ਹੈ।

### PDM-139 ਦੀਆਂ ਮੁੱਖ ਵਿਸ਼ੇਸ਼ਤਾਵਾਂ

- ਪੌਦੇ ਦੀ ਉਚਾਈ: 40–50 ਸੈ.ਮੀ. (ਅਰਧ-ਖੜ੍ਹਾ, ਝਾੜੀਦਾਰ)
- ਪੱਕਣ ਦੀ ਮਿਆਦ: 60–65 ਦਿਨ
- ਫਲੀ ਦੀ ਲੰਬਾਈ: 6–7 ਸੈ.ਮੀ., ਹਰ ਫਲੀ ਵਿੱਚ 9–10 ਦਾਣੇ
- ਦਾਣਾ: ਚਮਕਦਾਰ, ਮੋਟੇ ਹਰੇ ਦਾਣੇ
- ਰੋਗ ਪ੍ਰਤੀਰੋਧ: ਪੀਲਾ ਮੋਜ਼ੇਕ ਵਾਇਰਸ (YMV) ਅਤੇ ਪਾਊਡਰੀ ਮਿਲਡਿਊ ਪ੍ਰਤੀ ਸਹਿਨਸ਼ੀਲ
- ਬੀਜ ਦਰ: 8–10 ਕਿਲੋ/ਹੈਕਟੇਅਰ
- ਔਸਤ ਉਪਜ: 900–950 ਕਿਲੋ/ਹੈਕਟੇਅਰ (ਸੁਧਰੇ ਪ੍ਰਬੰਧ ਹੇਠ)

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### ਲਾਭ

- ਫਸਲ ਚੱਕਰ ਅਤੇ ਇੰਟਰਕ੍ਰਾਪਿੰਗ ਲਈ ਉਤਮ
- ਉੱਚ ਬਾਜ਼ਾਰੀ ਕੀਮਤ
- ਪ੍ਰੋਟੀਨ ਸਮ੍ਰਿੱਧ (23–25%)
- ਨਾਈਟਰੋਜਨ ਫਿਕਸੇਸ਼ਨ ਰਾਹੀਂ ਮਿੱਟੀ ਦੀ ਉਰਵਰਤਾ ਵਧਾਉਂਦੀ
- ਕਈ ਮੌਸਮਾਂ ਵਿੱਚ ਅਨੁਕੂਲ
- ਇਕਸਾਰ ਫਲੀ ਭਰਾਵ ਅਤੇ ਉੱਚ ਗੁਣਵੱਤਾ

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### ਮਿੱਟੀ ਅਤੇ ਜਲਵਾਯੂ ਦੀ ਲੋੜ

### ਜਲਵਾਯੂ

- ਤਾਪਮਾਨ: 20–30°C
- ਵਰਖਾ: 400–600 ਮਿ.ਮੀ. ਸਾਲਾਨਾ
- ਨਮੀ: ਮਧਯਮ; ਵੱਧ ਨਮੀ ਨਾਲ ਫੰਗਸ ਰੋਗ

- ਮੌਸਮ:
    - ਖਰੀਫ਼ (ਜੂਨ–ਜੁਲਾਈ)
    - ਗਰਮੀ (ਮਾਰਚ–ਅਪ੍ਰੈਲ)
    - ਰਬੀ (ਸਤੰਬਰ–ਅਕਤੂਬਰ)
- ਪੱਕਣ ਸਮਾਂ: 60–65 ਦਿਨ

### ਮਿੱਟੀ

- ਕਿਸਮ: ਚੰਗੀ ਨਿਕਾਸ ਵਾਲੀ ਦੋਆਬੀ ਮਿੱਟੀ ਸਭ ਤੋਂ ਵਧੀਆ
- ਬਣਤਰ: ਦੋਮਟ, ਰੇਤੀਲੀ ਦੋਮਟ, ਚਿਕਣੀ ਦੋਮਟ
- pH: 6.5–7.5
- ਨਿਕਾਸ: ਪਾਣੀ ਖੜ੍ਹਾ ਨਾ ਰਹੇ
- ਲਵਣਤਾ: ਖਾਰੀਆਂ/ਲਵਣੀ ਮਿੱਟੀਆਂ ਲਈ ਸੰਵੇਦਨਸ਼ੀਲ

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### ਖੇਤ ਦੀ ਤਿਆਰੀ

1. ਇੱਕ ਡੂੰਘੀ ਜੁੱਤੀ + 2–3 ਹਲ ਚਲਾਉਣਾ
2. ਖੇਤ ਸਮਤਲ ਕਰਨਾ
3. ਘਾਹ-ਫੂਸ, ਪੱਥਰ ਹਟਾਉਣਾ
4. ਬਿਜਾਈ ਵੇਲੇ ਯਥੋਚਿਤ ਨਮੀ
5. ਬਿਜਾਈ ਤੋਂ 7–10 ਦਿਨ ਪਹਿਲਾਂ ਤਿਆਰੀ ਪੂਰੀ
6. ਮਾਨਸੂਨ ਵਿੱਚ 15–20 ਸੈ.ਮੀ. ਉੱਚੇ ਬੈੱਡ ਬਣਾਉਣਾ

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### ਬੀਜ ਦਰ ਅਤੇ ਬਿਜਾਈ

#### ਬੀਜ ਦਰ

| ਤਰੀਕਾ | ਬੀਜ ਦਰ | ਫਾਸਲਾ |
|---|---|---|
| ਛਿੜਕਾਅ | 10–12 ਕਿਲੋ/ਹੈਕਟੇਅਰ | ਬੇਤਰਤੀਬ |
| ਕਤਾਰ ਬਿਜਾਈ | 8–10 ਕਿਲੋ/ਹੈਕਟੇਅਰ | 30 ਸੈ.ਮੀ. × 10 ਸੈ.ਮੀ. |
| ਸੀਡ ਡ੍ਰਿਲ | 8–10 ਕਿਲੋ/ਹੈਕਟੇਅਰ | 30 ਸੈ.ਮੀ. × 10 ਸੈ.ਮੀ. |

## ਬੀਜ ਮਿਆਰ

- ਸ਼ੁੱਧਤਾ: ≥ 98%
- ਅੰਕੁਰਣ: ≥ 85%
- ਨਮੀ: 8–10%
- 1000 ਦਾਣਿਆਂ ਦਾ ਵਜ਼ਨ: 30–35 ਗ੍ਰਾਮ

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## ਬੀਜ ਉਪਚਾਰ

### ਰਸਾਇਣਕ ਉਪਚਾਰ

- ਥਿਰਮ ਜਾਂ ਕਾਰਬੈਂਡਾਜ਼ਿਮ @ 2 ਗ੍ਰਾਮ/ਕਿਲੋ ਬੀਜ
- 24 ਘੰਟੇ ਛਾਂ ਵਿੱਚ ਸੁਕਾਉ

### ਜੈਵਿਕ ਟੀਕਾਕਰਣ

- ਰਾਈਜ਼ੋਬਿਯਮ: 10 ਮਿ.ਲੀ./ਕਿਲੋ
- PSB: 10 ਮਿ.ਲੀ./ਕਿਲੋ
- 24 ਘੰਟੇ ਸੁਕਾਉ; 24 ਘੰਟਿਆਂ ਵਿੱਚ ਬਿਜਾਈ ਕਰੋ

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## ਖਾਦ ਅਤੇ ਪੋਸ਼ਣ ਪ੍ਰਬੰਧ

### ਰਸਾਇਣਕ ਖਾਦ

| ਖਾਦ | ਮਾਤਰਾ (ਕਿਲੋ/ਹੈਕਟੇਅਰ) | ਸਮਾਂ |
|---|---|---|
| DAP | 25–35 | ਬਿਜਾਈ ਸਮੇਂ |
| MOP | 7–13 | ਬਿਜਾਈ ਸਮੇਂ |
| ਯੂਰੀਆ | 0–25 | ਜੇ N ਘੱਟ ਹੋਵੇ |

### ਸਿੰਚਾਈ ਅਨੁਸਾਰ

- ਸਿੰਚਿਤ: 35 ਕਿਲੋ DAP + 13 ਕਿਲੋ MOP

- ਬਾਰਾਨੀ: 25 ਕਿਲੋ DAP + 7 ਕਿਲੋ MOP

**ਜੈਵਿਕ ਖਾਦ**

- ਗੋਬਰ ਖਾਦ: 3–5 ਟਨ/ਹੈਕਟੇਅਰ
- ਵਰਮੀਕੰਪੋਸਟ: 1–2 ਟਨ

**ਸੂਖਸ਼ਮ ਪੋਸ਼ਕ**

- ਜ਼ਿੰਕ: 5 ਕਿਲੋ/ਹੈਕਟੇਅਰ
- ਬੋਰਾਨ: 1 ਕਿਲੋ/ਹੈਕਟੇਅਰ
- ਲੋਹਾ: 10 ਕਿਲੋ/ਹੈਕਟੇਅਰ

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## ਸਿੰਚਾਈ ਪ੍ਰਬੰਧ

- ਕੁੱਲ ਲੋੜ: 300–400 ਮਿ.ਮੀ.
- ਖਰੀਫ: 1–2 ਸਹਾਇਕ ਸਿੰਚਾਈ
- ਗਰਮੀ: 3–4 ਸਿੰਚਾਈ
- ਮਹੱਤਵਪੂਰਨ ਅਵਸਥਾਵਾਂ:
  - ਅੰਕੁਰਣ (0–15 ਦਿਨ)
  - ਫਲੀ ਬਣਨਾ (35–45 ਦਿਨ)
  - ਫਲੀ ਭਰਨਾ (45–60 ਦਿਨ)

### ਤਰੀਕਾ

- ਡ੍ਰਿਪ ਸਿੰਚਾਈ ਸਭ ਤੋਂ ਵਧੀਆ
- ਫਰੋ ਸਿੰਚਾਈ ਉਚਿਤ
- ਉਪਰੋਂ ਪਾਣੀ ਨਾ ਦੇਵੋ

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## ਘਾਹ-ਫੂਸ ਪ੍ਰਬੰਧ

- 25–30 ਦਿਨ ਤੇ ਹੱਥ ਨਾਲ ਨਿਰਾਈ
- ਪੈਂਡੀਮੇਥਾਲਿਨ 1.0 ਕਿਲੋ/ਹੈਕਟੇਅਰ (ਪ੍ਰੀ-ਇਮਰਜੈਂਸ)
- 2,4-D @ 0.5 ਕਿਲੋ/ਹੈਕਟੇਅਰ (ਪੋਸਟ-ਇਮਰਜੈਂਸ)

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## ਕੀਟ ਪ੍ਰਬੰਧ

| ਕੀਟ | ਲੱਛਣ | ਉਪਚਾਰ |
|---|---|---|
| ਸਟੈਮ ਫਲਾਈ | ਪੌਦੇ ਸੁੱਕਣ | ਇਮੀਡਾਕਲੋਪ੍ਰਿਡ @ 5 ਮਿ.ਲੀ./ਕਿਲੋ ਬੀਜ |
| ਥ੍ਰਿਪਸ | ਪੱਤੇ ਚਾਂਦੀ ਵਰਗੇ | ਪ੍ਰੋਫੇਨੋਫੋਸ @ 1.5 ਮਿ.ਲੀ./ਲੀਟਰ |
| ਲੀਫ ਹਾਪਰ | ਪੀਲਾਪਣ | ਡਾਈਮੇਥੋਏਟ @ 1.5 ਮਿ.ਲੀ./ਲੀਟਰ |
| ਫਲੀ ਛੇਦਕ | ਫਲੀਆਂ ਨੁਕਸਾਨ | ਸਾਇਪਰਮੇਥ੍ਰਿਨ @ 1.0 ਮਿ.ਲੀ./ਲੀਟਰ |

PHI: 21 ਦਿਨ

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## ਰੋਗ ਪ੍ਰਬੰਧ

| ਰੋਗ | ਲੱਛਣ | ਉਪਚਾਰ |
|---|---|---|
| ਪੀਲਾ ਮੋਜ਼ੇਕ | ਪੀਲੇ ਧੱਬੇ | ਇਮੀਡਾਕਲੋਪ੍ਰਿਡ ਛਿੜਕਾਅ |
| ਪਾਊਡਰੀ ਮਿਲਡਿਊ | ਸਫ਼ੈਦ ਪਾਊਡਰ | ਗੰਧਕ ਛਿੜਕਾਅ |
| ਲੀਫ ਸਪੌਟ | ਭੂਰੇ ਧੱਬੇ | ਮੈਨਕੋਜ਼ੇਬ |
| ਰੂਟ ਰਾਟ | ਜੜ੍ਹਾਂ ਸੜਨ | ਟ੍ਰਾਈਕੋਡਰਮਾ |

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## ਕਟਾਈ ਅਤੇ ਬਾਅਦ ਪ੍ਰਬੰਧ

- 60–65 ਦਿਨ ਵਿੱਚ ਤਿਆਰ
- 80% ਫਲੀਆਂ ਭੂਰੀਆਂ
- ਨਮੀ: 10–12%
- ਸਵੇਰੇ ਕਟਾਈ

## ਬਾਅਦ ਦੀ ਕਾਰਵਾਈ

1. 5–7 ਦਿਨ ਧੁੱਪ ਵਿੱਚ ਸੁਕਾਉ
2. ਥ੍ਰੈਸ਼ਿੰਗ
3. ਸਾਫ਼ਾਈ ਅਤੇ ਗ੍ਰੇਡਿੰਗ
4. ਸਟੋਰ: 15–20°C, <10% ਨਮੀ

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## ਉਪਜ

| ਪ੍ਰਬੰਧ | ਉਪਜ (ਕਿਲੋ/ਹੈਕਟੇਅਰ) |
|---|---|
| ਰਵਾਇਤੀ | 500–600 |
| ਸੁਧਰੀ ਤਕਨੀਕ | 900–950 |
| ਉੱਚ ਇਨਪੁਟ | 1000–1100 |

# મગ (લીલો ચણો) બીજ PDM-139 માટે ખેતી પેકેજ

### પરિચય

મગ (Vigna radiata L.), જેને લીલો ચણો અથવા મુંગ બીન તરીકે ઓળખવામાં આવે છે, ભારતભરમાં વ્યાપક રીતે ઉગાડવામાં આવતી મહત્વપૂર્ણ કઠોળ પાક છે. PDM-139 (સમ્રાટ તરીકે પણ ઓળખાય છે) ઉચ્ચ ઉત્પાદન આપતી અને ટૂંકી અવધિની જાત છે, જે વ્યાવસાયિક ખેતી માટે વિકસાવવામાં આવી છે. તે ખરીફ (મોન્સૂન) અને ઉનાળુ બંને મોસમ માટે યોગ્ય છે.

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### PDM-139 ની મુખ્ય વિશેષતાઓ

- છોડની ઊંચાઈ: 40–50 સેમી (અર્ધ ઊભો, ઝાડિયા પ્રકાર)
- પાક આવવાની અવધિ: 60–65 દિવસ
- શીંગની લંબાઈ: 6–7 સેમી, પ્રતિ શીંગ 9–10 દાણા
- દાણા પ્રકાર: ચમકદાર, મોટા લીલા દાણા
- રોગ પ્રતિકારકતા: યેલો મોઝેક વાયરસ (YMV) અને પાવડરી મિલ્ડ્યુ પ્રત્યે સહનશીલ
- બીજ દર: 8–10 કિગ્રા/હેક્ટર
- સરેરાશ ઉપજ: 900–950 કિગ્રા/હે. (સુધારેલી પદ્ધતિ હેઠળ)

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### લાભો

- પાક ફેરબદલી અને મિશ્ર ખેતી માટે ઉત્તમ
- બજારમાં ઊંચી માંગ અને સારો ભાવ
- પ્રોટીનથી ભરપૂર (23–25%)
- નાઈટ્રોજન સ્થિરકરણથી જમીનની ઉર્વરતા વધે
- અનેક મોસમમાં અનુકૂળ
- શીંગ ભરાવ અને દાણા ગુણવત્તા સમાન

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### જમીન અને હવામાનની જરૂરિયાત

#### હવામાન

- તાપમાન: 20–30°C
- વરસાદ: 400–600 મીમી પ્રતિ વર્ષ

- ભેજ: મધ્યમ; વધુ ભેજ ફૂગ રોગો લાવે
- મોસમ:
    - ખરીફ (જૂન–જુલાઈ)
    - ઉનાળો (માર્ચ–એપ્રિલ)
    - રબી (સપ્ટેમ્બર–ઓક્ટોબર)
- પાક અવધિ: 60–65 દિવસ

### જમીન

- પ્રકાર: સારા ડ્રેનેજવાળી દોળીય જમીન શ્રેષ્ઠ
- બંધારણ: ચીકણી દોળીય, રેતીલી દોળીય
- pH: 6.5–7.5
- પાણી નિકાસ: પાણી ભરાઈ ન રહે
- લવણતા: ખારી/ક્ષારી જમીન માટે સંવેદનશીલ

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### ખેતરની તૈયારી

1. એક ઊંડી હળચાલ પછી 2–3 વાર બખરણી
2. ખેતર સમતલ કરવું
3. નીંદણ, પથ્થર અને મૂળ દૂર કરવી
4. વાવણી વખતે યોગ્ય ભેજ
5. વાવણી પહેલાં 7–10 દિવસ તૈયારી પૂર્ણ
6. મોન્સૂનમાં 15–20 સેમી ઊંચા પાથરા (બેડ) બનાવવાં

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### બીજ દર અને વાવણી

| પદ્ધતિ | બીજ દર | અંતર |
|---|---|---|
| છંટકાવ | 10–12 કિગ્રા/હે. | અનિયમિત |
| લાઈન વાવણી | 8–10 કિગ્રા/હે. | 30 સેમી × 10 સેમી |
| સીડ ડ્રિલ | 8–10 કિગ્રા/હે. | 30 સેમી × 10 સેમી |

### બીજ ગુણવત્તા

- શુદ્ધતા: ≥ 98%
- અંકુરણ: ≥ 85%

- ભેજ: 8–10%
- 1000 દાણા વજન: 30–35 ગ્રામ

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### બીજ ઉપચાર

#### રાસાયણિક ઉપચાર

- થિરમ અથવા કાર્બેન્ડાઝિમ @ 2 ગ્રામ/કિગ્રા બીજ
- 24 કલાક છાંયામાં સુકવવું

#### જૈવિક ઉપચાર

- રાઈઝોબિયમ સંસ્કૃતિ: 10 મિ.લી./કિગ્રા
- PSB: 10 મિ.લી./કિગ્રા
- 24 કલાકમાં વાવણી કરવી

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### ખાતર અને પોષણ વ્યવસ્થા

#### રાસાયણિક ખાતર

| ખાતર | માત્રા (કિગ્રા/હે.) | સમય |
|---|---|---|
| DAP | 25–35 | વાવણી સમયે |
| MOP | 7–13 | વાવણી સમયે |
| યુરિયા | 0–25 | જો N ઓછું હોય |

#### સિંચાઈ મુજબ ભલામણ

- સિંચિત: 35 કિગ્રા DAP + 13 કિગ્રા MOP
- વરસાદ આધારિત: 25 કિગ્રા DAP + 7 કિગ્રા MOP

#### સજીવ ખાતર

- ગોબર ખાતર/કંપનીસ્ટ: 3–5 ટન/હે.
- વર્મીકંપનીસ્ટ: 1–2 ટન/હે.

#### સુક્ષ્મ પોષક તત્વો

- જિંક: 5 કિગ્રા/હે.
- બોરોન: 1 કિગ્રા/હે.
- આયર્ન: 10 કિગ્રા/હે.

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### સિંચાઈ વ્યવસ્થા

- કુલ પાણી જરૂરિયાત: 300–400 મીમી
- ખરીફ: 1–2 પૂરક સિંચાઈ
- ઉનાળો: 3–4 સિંચાઈ
- મહત્વપૂર્ણ તબક્કા:
  - અંકુરણ (0–15 દિવસ)
  - શીંગ બંધાવ (35–45 દિવસ)
  - શીંગ ભરાવ (45–60 દિવસ)

### પદ્ધતિ

- ડ્રિપ સિંચાઈ શ્રેષ્ઠ
- ફ્રો સિંચાઈ યોગ્ય
- ઉપરથી પાણી આપવું ટાળવું

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### નીંદણ નિયંત્રણ

- 25–30 દિવસે હાથથી નીંદણ
- પેન્ડિમેથાલિન 1.0 કિગ્રા/હે. (વાવણી પછી)
- 2,4-D @ 0.5 કિગ્રા/હે.

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### જીવાત નિયંત્રણ

| જીવાત | લક્ષણ | ઉપાય |
|---|---|---|
| સ્ટેમ ફ્લાઈ | છોડ સુકાઈ જાય | ઈમિડાક્લોપ્રિડ @ 5 મિ.લી./કિગ્રા |
| થ્રિપ્સ | પાંદડા ચાંદી જેવા | પ્રોફેનોફોસ @ 1.5 મિ.લી./લિટર |
| લીફ હોપર | પીળાશ | ડાયમેથોયેટ @ 1.5 મિ.લી./લિટર |
| પોડ બોરર | શીંગ નુકસાન | સાયપરમેથ્રિન @ 1.0 મિ.લી./લિટર |

PHI: 21 દિવસ

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## રોગ નિયંત્રણ

| રોગ | લક્ષણ | ઉપાય |
|---|---|---|
| યેલો મોઝેક | પીળા ડાઘ | ઇમિડાક્લોપ્રિડ છંટકાવ |
| પાવડરી મિલ્ડ્યુ | સફેદ પાવડર | ગંધક છંટકાવ |
| લીફ સ્પોટ | ભૂરા ડાઘ | મેન્કોઝેબ |
| રૂટ રોટ | મૂળ સડે | ટ્રાઈકોટોડર્મા |

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## કાપણી અને પાક પછી વ્યવસ્થા

- 60–65 દિવસમાં પાક તૈયાર
- 80% શીંગ ભૂરા રંગની
- ભેજ: 10–12%
- વહેલી સવારે કાપણી

### પાક પછી

1. 5–7 દિવસ સૂર્યપ્રકાશમાં સુકવવું
2. થ્રેશિંગ
3. સફાઈ અને ગ્રેડિંગ
4. સંગ્રહ: 15–20°C, <10% ભેજ

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## ઉપજ

| પદ્ધતિ | ઉપજ (ક્વિ/હે.) |
|---|---|
| પરંપરાગત | 500–600 |
| સુધારેલી પદ્ધતિ | 900–950 |
| ઉચ્ચ ઈનપુટ | 1000–1100 |