Sugarcane Package of Practice (PoP) / गन्ना उत्पादन तकनीकी पैकेज

Variety / किस्म: Co 0238

Recommended Region / अनुशंसित क्षेत्र: Central Uttar Pradesh (मध्य उत्तर प्रदेश)

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1. Variety Profile Sheet / किस्म परिचय पत्र

Particulars / विवरण	Details / विवरण
Crop / फसल	Sugarcane (*Saccharum officinarum* L.) / गन्ना
Variety Name / किस्म का नाम	**Co 0238**
Recommended Region / अनुशंसित क्षेत्र	Central Uttar Pradesh / मध्य उत्तर प्रदेश
Soil Suitability / उपयुक्त मृदा	Loam Soil / दोमट मिट्टी
Soil Fertility Requirement / मृदा उर्वरता	Medium / मध्यम
Water Requirement / जल आवश्यकता	Medium / मध्यम
Suitable Planting Season / उपयुक्त बुवाई समय	Autumn & Spring / शरदकालीन एवं बसंतकालीन
Maturity Group / परिपक्वता वर्ग	Early Maturing / शीघ्र पकने वाली
Crop Duration / फसल अवधि	10–12 months / 10–12 माह
Expected Cane Yield / अनुमानित गन्ना उपज	**95 tonnes/ha / 95 टन/हेक्टेयर**
Sugar Recovery / चीनी परता	**11.8%**
Ratoon Suitability / पेड़ी फसल उपयुक्तता	Good / अच्छी
Major Disease Concern / प्रमुख रोग	**Red Rot (लाल सड़न) एवं Smut (कंडुआ रोग)**
Special Feature / विशेष विशेषता	High cane yield, high sugar recovery and wide adaptability / उच्च उपज, अधिक चीनी परता एवं व्यापक अनुकूलता
Recommended Use / उपयोग	Commercial Sugarcane Cultivation / व्यावसायिक गन्ना उत्पादन

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2. Introduction / परिचय

English

Co 0238 is one of the most popular **early maturing sugarcane varieties** cultivated in **Central Uttar Pradesh** due to its exceptional cane productivity, superior sugar recovery, and excellent adaptability. It performs well in **loam soils** under **medium irrigation** and is suitable for both **autumn and spring planting**. Under recommended management practices, the variety produces an average cane yield of **95 tonnes/ha** with **11.8% sugar recovery**.

The variety has significantly improved sugar productivity in Uttar Pradesh because of its excellent cane quality, rapid early growth, and good ratooning ability. However, continuous cultivation increases the risk of **Red Rot and Smut diseases**. Therefore, farmers should use certified disease-free seed cane, adopt proper sett treatment, maintain field sanitation, follow crop rotation, and implement integrated disease management practices.

Key Features

- Improved early maturing sugarcane variety.
- Highly suitable for Central Uttar Pradesh.
- Performs well under loam soils with medium irrigation.
- Suitable for autumn and spring planting.
- High cane yield (**95 t/ha**).
- Excellent sugar recovery (**11.8%**).
- Good ratooning ability.
- Preferred by sugar industries because of superior cane quality.

हिंदी

Co 0238 मध्य उत्तर प्रदेश की सबसे लोकप्रिय **शीघ्र पकने वाली उन्नत गन्ना किस्मों** में से एक है। यह अपनी **अधिक उपज, उच्च चीनी परता तथा उत्कृष्ट अनुकूलन क्षमता** के कारण किसानों एवं चीनी मिलों द्वारा व्यापक रूप से अपनाई जाती है। यह **दोमट मिट्टी** तथा **मध्यम सिंचाई** की परिस्थितियों में अच्छा प्रदर्शन करती है तथा **शरदकालीन एवं बसंतकालीन दोनों मौसमों** में सफलतापूर्वक बोई जा सकती है। वैज्ञानिक प्रबंधन अपनाने पर यह लगभग **95 टन/हेक्टेयर गन्ना उत्पादन** तथा **11.8% चीनी परता** प्रदान करती है।

यह किस्म उत्कृष्ट गन्ना गुणवत्ता, अधिक चीनी संचय तथा अच्छी पेड़ी क्षमता के कारण अत्यंत लोकप्रिय है। हालांकि लगातार एक ही किस्म की खेती करने से **लाल सड़न (Red Rot)** एवं **कंडुआ (Smut)** रोगों का प्रकोप बढ़ सकता है। इसलिए किसानों को प्रमाणित रोगमुक्त बीज, उचित बीज उपचार, खेत की स्वच्छता, फसल चक्र तथा समेकित रोग प्रबंधन अपनाना चाहिए।

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3. Agro-Climatic Requirements / जलवायु आवश्यकताएँ

Parameter / मानक	Recommended Condition / अनुशंसा
Climate / जलवायु	Subtropical / उपोष्णकटिबंधीय
Temperature / तापमान	20–35°C
Annual Rainfall / वार्षिक वर्षा	750–1200 mm
Suitable Soil / उपयुक्त मृदा	Loam to Clay Loam / दोमट से चिकनी दोमट मिट्टी

Parameter / मानक	Recommended Condition / अनुशंसा
Soil pH	6.5–8.0
Planting Season / बुवाई समय	Autumn (September–October) & Spring (February–March) / सितंबर–अक्टूबर एवं फरवरी–मार्च

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4. Soil Requirement and Land Preparation / मृदा एवं खेत की तैयारी

Suitable Soil / उपयुक्त मृदा

- Well-drained fertile loam soils.
- Medium fertility with good moisture retention.
- Avoid saline and waterlogged fields.

Land Preparation / खेत की तैयारी

- Deep ploughing (25–30 cm).
- Two to three harrowings.
- Proper field levelling.
- Prepare furrows or trenches before planting.
- Apply organic manure during final land preparation.

Organic Manure Recommendation / जैविक खाद की मात्रा

Input / इनपुट	Recommended Quantity / मात्रा
Farm Yard Manure (FYM)	20–25 t/ha
Vermicompost	2–5 t/ha
Green Manuring	Recommended / अनुशंसित

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5. Seed Cane Selection and Treatment / बीज गन्ना चयन एवं उपचार

Seed Selection / बीज चयन

- Use certified disease-free seed cane.
- Select healthy 10–12 month-old canes.
- Avoid seed from Red Rot and Smut infected fields.
- Maintain separate seed production plots.

Seed Treatment / बीज उपचार

Treatment / उपचार	Purpose / उद्देश्य
Hot Water Treatment	Disease suppression
Fungicide Treatment	Control of fungal pathogens
Bio-agent Treatment	Improves soil microbial activity

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6. Planting Practices / बुवाई तकनीक

Practice / क्रिया	Recommendation / अनुशंसा
Planting Season	Autumn & Spring
Planting Method	Furrow/Trench Planting
Seed Rate	8–10 t/ha
Sett Type	2–3 bud setts
Row Spacing	90–120 cm
Gap Filling	Within 30–45 days after planting

Important Recommendations / महत्वपूर्ण सुझाव

- Use healthy and vigorous buds.
- Maintain uniform plant population.
- Avoid deep planting.
- Ensure adequate soil moisture during planting.

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7. Nutrient Management / पोषक तत्व प्रबंधन

Balanced nutrient management is essential for maximizing cane yield and sugar recovery.

Nutrient / पोषक तत्व	Recommendation / अनुशंसा
Nitrogen (N)	Apply according to soil test in split doses
Phosphorus (P_2O_5)	Apply during planting
Potassium (K_2O)	Improves cane strength and disease tolerance
Sulphur (S)	Apply in deficient soils
Zinc & Iron	Apply if deficiency is observed

Integrated Nutrient Management / समेकित पोषक तत्व प्रबंधन

- Apply FYM and compost.
- Use biofertilizers (Azotobacter, PSB).
- Adopt green manuring.
- Recycle crop residues.

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8. Irrigation Management / सिंचाई प्रबंधन

Co 0238 requires **medium irrigation**. Efficient water management improves cane yield and sugar recovery.

Growth Stage / वृद्धि अवस्था	Importance / महत्व
Germination	Crop establishment
Tillering	Shoot development
Grand Growth	Cane elongation
Maturity	Sugar accumulation

Water Management Practices / जल प्रबंधन

- Adopt drip irrigation and fertigation.
- Use sugarcane trash mulching.
- Avoid waterlogging.
- Maintain adequate soil moisture during dry periods.

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9. Weed Management / खरपतवार प्रबंधन

Major Weeds / प्रमुख खरपतवार

- Cyperus rotundus (मोथा)
- Echinochloa spp. (सांवां घास)
- Parthenium (गाजर घास)
- Trianthema spp. (इटसिट)

Management Practices / प्रबंधन

- Keep the field weed-free during the first 90 days.
- Carry out intercultural operations.
- Perform earthing-up.
- Apply recommended herbicides when required.

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10. Pest Management / कीट प्रबंधन

Major Pest / प्रमुख कीट	Management Strategy / प्रबंधन
Early Shoot Borer	Regular monitoring and biological control
Top Borer	Regular field surveillance
Pyrilla	Conservation of natural enemies
Termites	Soil moisture and sanitation management
White Grub	Integrated Pest Management (IPM)

Integrated Pest Management (IPM) / समेकित कीट प्रबंधन

- Use pheromone traps wherever applicable.
- Encourage parasitoids and natural predators.
- Avoid unnecessary pesticide application.

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11. Disease Management / रोग प्रबंधन

A. Red Rot (लाल सड़न रोग)

Symptoms / लक्षण

- Red discoloration inside cane.
- White patches across internal tissues.
- Drying of leaves.
- Reduced cane weight and sugar recovery.

Management / प्रबंधन

Practice / उपाय	Recommendation / अनुशंसा
Seed Material	Use certified disease-free seed cane
Crop Rotation	Avoid continuous sugarcane cultivation
Field Sanitation	Remove and destroy infected plants
Resistant Varieties	Prefer tolerant varieties in affected areas
Ratoon Crop	Avoid ratooning infected fields

B. Smut (कंडुआ रोग)

Symptoms / लक्षण

- Black whip-like structure emerging from the growing point.
- Thin and weak stalks.
- Reduced cane yield.

Management / प्रबंधन

- Use healthy disease-free planting material.
- Remove infected plants immediately.
- Follow hot water and fungicide sett treatment.
- Maintain field hygiene.
- Avoid ratooning infected fields.

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12. Ratoon Crop Management / पेड़ी फसल प्रबंधन

Co 0238 has **good ratooning ability** under proper management.

Recommended Practices / अनुशंसित उपाय

- Select healthy harvested fields.
- Remove diseased clumps.
- Apply fertilizers immediately after harvest.
- Maintain proper irrigation.
- Monitor Red Rot and Smut regularly.

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13. Harvest Management / कटाई प्रबंधन

Harvest Indicators / कटाई के संकेत

- Yellowing of lower leaves.
- Proper cane maturity.
- Maximum sugar accumulation.

Recommendations / अनुशंसाएँ

- Harvest at optimum maturity.
- Avoid delayed harvesting.
- Transport cane quickly to sugar mills.
- Maintain cane freshness and quality.

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14. Sustainable Sugarcane Production Practices / टिकाऊ गन्ना उत्पादन तकनीक

Practice / तकनीक	Benefit / लाभ
Trash Mulching	Conserves soil moisture
Drip Irrigation	Saves irrigation water
Organic Inputs	Improves soil health
Crop Rotation	Reduces disease pressure

Practice / तकनीक	Benefit / लाभ
Conservation Agriculture	Sustainable production

15. Digital Agriculture Applications / डिजिटल कृषि अनुप्रयोग

Technology / तकनीक	Application / उपयोग
GIS Mapping	Sugarcane area monitoring
Remote Sensing	Crop health assessment
IoT Sensors	Soil moisture monitoring
Mobile Advisory	Farmer advisory services
Decision Support System (DSS)	Variety and crop management recommendations

16. Recommended Alternative Varieties for Central Uttar Pradesh / मध्य उत्तर प्रदेश के लिए वैकल्पिक किस्में

Variety / किस्म	Adaptation / अनुकूलता	Maturity / परिपक्वता	Major Advantage / प्रमुख लाभ
Co 0118	Central UP	Early	Good cane quality
Co 15023	UP Sugar Belt	Mid-late	High productivity
CoS 8436	Stress-prone areas	Mid	Stable performance
Co 98014	North India	Mid	Good ratooning ability

17. Final Recommendation / अंतिम अनुशंसा

English

Co 0238 is one of the best-performing **early maturing sugarcane varieties** for **Central Uttar Pradesh**. It performs exceptionally well under **loam soils** with **medium irrigation**, producing approximately **95 tonnes/ha cane yield** with an excellent **11.8% sugar recovery**. Because **Red Rot and Smut** are the principal disease risks, farmers should adopt certified disease-free seed cane, proper sett treatment, crop rotation, balanced nutrient management, field sanitation, and integrated disease management practices for sustainable and profitable sugarcane cultivation.

हिंदी

Co 0238 मध्य उत्तर प्रदेश के लिए अत्यंत उपयुक्त **शीघ्र पकने वाली उन्नत गन्ना किस्म** है। यह **दोमट मिट्टी** एवं **मध्यम सिंचाई** की परिस्थितियों में उत्कृष्ट प्रदर्शन करती है तथा लगभग **95 टन/हेक्टेयर गन्ना उत्पादन** एवं **11.8% चीनी परता** प्रदान करती है। चूँकि **लाल सड़न (Red Rot)** एवं **कंडुआ (Smut)** इसके प्रमुख रोग हैं, इसलिए किसानों को प्रमाणित रोगमुक्त बीज, उचित बीज उपचार, फसल चक्र, संतुलित पोषक तत्व प्रबंधन, खेत की स्वच्छता तथा समेकित रोग प्रबंधन अपनाकर टिकाऊ एवं लाभकारी गन्ना उत्पादन सुनिश्चित करना चाहिए।