Package of Practices (POP) – Sugarcane Variety CoSe 98231

Introduction

CoSe 98231, popularly known as Shahjahanpur-1, is a mid-season, high-yielding sugarcane variety developed at the Shahjahanpur Sugar Research Station (SSRS), Uttar Pradesh. It is recommended for Eastern and Central UP on clay loam and loam soils. The variety offers strong tillering, sturdy stalks, good juice quality, and moderate resistance to Red Rot and Wilt diseases, making it a dependable choice for spring planting.

Land Preparation

Soil and Climate: CoSe 98231 performs best on clay loam and loam soils with good internal drainage and organic matter content. It thrives in the warm sub-tropical climate of UP (21–27°C) with 75–130 cm annual rainfall. Assured irrigation is essential during dry spells.

Tillage: Carry out 3–4 deep ploughings to a depth of 28–30 cm using a disc or mould board plough. Cross-plough and harrow to achieve fine, crumbly tilth. Incorporate 10–12 t/ha of well-decomposed FYM during the last ploughing. Level the field with a laser leveller or board plank for uniform irrigation distribution. Prepare furrows 75–90 cm apart and 25–30 cm deep.

Planting

Timing: Optimal planting in Eastern and Central UP is February–March (spring planting). Optimum window: 15 February to 15 March.

Seed material: Use three-budded setts from 8–9 month old, disease-free certified seed nursery. Seed rate: 37,500 setts/ha (approximately 6–8 t of seed cane/ha).

Seed Treatment

- Hot Water Treatment (HWT): Immerse setts in water at 52°C for 30 minutes to eliminate Ratoon Stunting Disease (RSD) and systemic pathogens.
- Chemical treatment: Dip setts in 0.1% Carbendazim (Bavistin) + 0.1% Chlorpyrifos solution for 10 minutes before planting.
- Bio-treatment: Treat with Trichoderma harzianum @ 4 g/litre of water for biological disease suppression.

Planting Methods

Furrow method: Standard furrow method at 90 cm row spacing is preferred. Place two three-budded setts end-to-end with slight overlap, buds facing upward, in the 25–30 cm deep furrow. Cover lightly with soil.

Paired row method: Paired row spacing (45 cm + 90 cm) can be adopted for intercropping with lentil, pea, or potato. Ensures better solar interception during early growth.

Pest protection at planting: Apply Chlorpyrifos 20 EC @ 5 litres/ha or Fipronil 0.3% GR @ 20 kg/ha in the furrow at the time of planting to protect against termites and early shoot borers. Cover setts immediately after application.

Nutrient Management

Fertilizers: Based on soil testing. Recommended dose: 280 kg N, 90 kg P_2O_5, and 120 kg K_2O per hectare.

Basal dose: Apply the full dose of P_2O_5 and K_2O and one-third of N at planting, mixed with FYM.

Top dressing: Apply remaining nitrogen in two equal splits – first split at 30–45 days after planting (DAP) and second split at 90 DAP during earthing up.

Bio-fertilizers: Apply Azotobacter @ 2 kg/ha + PSB (Phosphate Solubilising Bacteria) @ 2 kg/ha mixed with FYM. Apply in three splits at 30, 60, and 90 DAP for sustained nutrient supply.

Irrigation

Irrigation schedule:

- Germination phase (0–35 days): Irrigate every 7 days.
- Tillering phase (36–100 days): Irrigate every 10 days.
- Grand growth phase (101–270 days): Irrigate every 7 days.
- Maturity phase (>270 days): Withhold irrigation 30–40 days before harvest to improve sugar recovery.

Water-saving: Adopt alternate furrow irrigation or drip irrigation with fertigation in water-scarce areas. Trash mulching between rows conserves moisture significantly.

Weed Control

Pre-emergence: Spray Atrazine 50% WP @ 2 kg a.i./ha within 3–4 days of planting using 400–500 litres of water per hectare.

Post-emergence: Apply 2,4-D sodium salt @ 1.0 kg a.i./ha at 25–30 DAP for control of broad-leaf weeds. For grassy weeds, use hand weeding.

Mulching: Spread dry sugarcane trash (8–10 cm layer) between rows to suppress weeds and conserve soil moisture.

Pest and Disease Management

Major pests: Early shoot borer (Chilo infuscatellus), termites, top borer (Scirpophaga excerptalis), and Pyrilla.

Management:

- Shoot borer: Release Trichogramma japonicum @ 2.5 lakh/ha; apply Chlorpyrifos 20 EC in furrows at planting.
- Termites: Drench Chlorpyrifos 20 EC @ 4 litres/ha in furrows.
- Pyrilla: Release Epiricania melanoleuca egg cards; spray Malathion 50 EC @ 1 litre/ha if required.

Major diseases: Red Rot (Colletotrichum falcatum), Wilt, and Smut.

Management:

- Red Rot: Use disease-free certified seed; treat with Carbendazim; rogue and destroy infected clumps.
- Wilt: Ensure proper field drainage; avoid waterlogging; use clean setts from healthy nurseries.
- Smut: HWT at 52°C for 30 minutes eliminates smut spores; rogue infected "whip" shoots.

Yield

Yield potential: Plant crop: 75–95 t/ha. Ratoon crop: 60–75 t/ha.

Sugar recovery: 10.2% (CCS basis). Juice Brix: 18–19%, Purity: 84–87%.

Best suited for: Eastern and Central Uttar Pradesh on clay loam and loam soils.

Ratoon Management

Stubble shaving: Shave stubbles with a sharp spade to a depth of 8–10 cm below soil surface immediately after harvest.

Gap filling: Fill gaps within 15–20 days of stubble shaving using sprouted cane setts from the same field; target >80% plant population.

Fertilizer: Apply 25–30% more nitrogen than the plant crop dose. Full P_2O_5 and K_2O at ratoon initiation. Earthing up at 60 DAS.

Irrigation: Irrigate within 24 hours of harvesting the main crop to stimulate ratoon sprouting. Maintain regular schedule thereafter.

Weed control: Spray Atrazine 1.5 kg a.i./ha at 3 days after stubble shaving, followed by 2,4-D at 30 DAS.

Fair and Remunerative Price (FRP) of Sugarcane

The FRP is the minimum price that sugar mills are legally required to pay sugarcane farmers, fixed by the central government on CACP recommendations.

Season	FRP (₹/quintal)	Base Recovery
2025–26	₹355	10.25%
2024–25	₹340	10.25%
UP SAP 2024–25	₹370 (early varieties)	—

A premium of ₹3.46 per quintal is paid for every 0.1% increase in recovery above 10.25%. For mills with recovery below 9.5%, the minimum price is ₹329.05 per quintal.