

Frost Night Precision & Lean Labor Deployment Checklist

FREE DOWNLOAD

Target User: Vineyard Managers, Estate Directors, Field Operations Leads

Core Objective: Ensure 400 frost candles per hectare are 100% lit within the 20-minute golden window using a minimal crew.

Phase 1: 24-48 Hours Before Frost | Pre-Staging & Cost Reduction


Goal: Eliminate every operational speed bump before midnight.

【Weather Metric Alignment】

Monitor your microclimate weather station. Track wet bulb temperature instead of dry bulb temperature. Trigger the emergency plan the moment wet bulb forecasts drop below 0°C.


【Material Calculators】

Double-check candle inventory. For a standard -2°C to -3°C radiation frost, map out a 300 - 400 candles/hectare grid layout.

 **Efficiency Tip:** Match your candle burn time to the frost duration forecast. If utilizing TABO Custom Frost Candles, verify whether you are deploying 6h, 8h, or 12h specs to eliminate fuel waste.

【Pre-Uncapping (Core Hack)】

Deploy a day shift to pry open all metal lids and rest them loosely on the rims.

 **Prohibited Action:** Never uncap candles from scratch at midnight. Prying open 400 tight lids with freezing gloves wastes at least 20 minutes.

【Windward Mapping】

Confirm predicted wind directions. Mark the upwind perimeter with reflective tape; this boundary requires a 50% higher candle concentration.

🌙 Phase 2: Frost Night (T-3 Hours) | Crew Mobilization & Equipment Audits

Goal: Ensure workers and gear are 100% optimized.

【Grid Sector Ownership】

Implement strict zone ownership. Abandon unorganized group lighting. Assign 1 worker with a thermal lance to manage a designated 1.5 to 2 hectares (approx. 600-800 candles) with pre-mapped marching routes.

【Ignition Weapon Check】

Ban standard butane lighters. Equip all crews with backpack propane thermal lances. Test all ignition jets to ensure a stable 15-20 cm windproof flame.

【PPE & Safety Gear】

Verify personal protective equipment (PPE). All crew members must wear fire-retardant overalls, heavy thermal gloves, and high-lumen headlamps to keep both hands free.

🔥 Phase 3: Frost Shock (T-0 Hour) | Extreme Ignition Grid Execution

Goal: No bending over, constant movement, rapid fire.

【The Launch Order】

Launch the lighting assault the second ground sensors hit the phenological critical temperature for your specific varietal (e.g., -2.2°C for Chardonnay budburst).

【Execute the 1/2 Intersect Array】

Minute 1: Light the first row of the upwind perimeter to form an initial thermal block.

Minute 5: Move in a "chessboard pattern," lighting only the odd-numbered candles across your zone.

Temperature Correction: If ground sensors plunge past -3.5°C, double back immediately to ignite the remaining even-numbered candles for 100% heat output.

【Zero-Bending Travel Standard】

Workers must maintain a steady walking pace, sweeping the long-handled lance over the wax (ignition time < 1.5 seconds per candle). Use boot tips to kick off the pre-loosened lids. Never bend over.

Phase 4: Next Morning | Extinguishing, Re-ignition Assessment & ESG Audits

Goal: Maximize material recovery and guarantee organic compliance.

【Sunrise Extinguishment】

Once the sun rises and ground sensors stabilize safely above 1°C, send crews to smother the flames using dedicated snuffer poles or the original metal lids.

【Residual Fuel Calculations】

Check unburned wax. Because TABO Candles feature exceptional multi-ignition stability, record remaining fuel heights (e.g., 40% remaining), hammer the lids tight to keep out moisture, and catalog them for the next short-duration frost cycle.

【Organic Compliance Inspection】

For vineyards maintaining strict EU Organic or Biodynamic certifications, inspect the canopy area. Ensure zero soot residue from clean-burning vegetable/stearic acid wax, guaranteeing a seamless pass on your next organic audit.

Performance Transformation Board

Metric	Traditional Unmanaged Lighting	The Lean Labor Checklist Method	Efficiency Gain
Labor Needed / Hectare	3 - 4 Casual Labors (Night Shift)	1 Fixed Team Member	Saves 75% Labor Costs
Ignition Time (400 Candles)	66 Minutes (Misses Window)	13.3 Minutes (Inside Window)	400% Frost Success Rate
Physical Ergonomics	400 Deep Bends (High Injury Risk)	0 Bends (Lance + Boot Flick)	95% Lower Work Injury Risk