

**GOVERNMENT OF MIZORAM
HORTICULTURE DEPARTMENT
MIZORAM:AIZAWL**

TENDER NOTICE

No.B.13016/34/2014-HORT/pt-I: On behalf of the Governor of Mizoram, Sealed tender is hereby invited by the Secretary, Horticulture Department, Govt. of Mizoram, from the Manufacturer/ Authorized Dealer/ Agent for supply and installation of Ripening Chamber under Integrated Post Harvest Management of MIDH 2019-2020 & 2020-2021. Sealed quotation may be submitted to the Director of Horticulture, Govt.of Mizoram, Aizawl on or before **1.11.2021** upto **12:30 Pm** and will be opened on the same day at **1:00 Pm** at the Committee Room, Directorate of Horticulture, Aizawl.

The complete bid documents should be dropped in the Tender Box placed at PA Cell of the Director, Directorate of Horticulture, Aizawl. Details can be obtained from the Vegetable Section, Directorate of Horticulture, Aizawl .Office hours on working days and be seen from the Department website www.horticulture.mizoram.gov.in.

Sd/- J.C. RAMTHANGA

Addl. Chief Secretary to the Govt. of Mizoram
Horticulture Department

Memo No.B.13016/34/2020-HORT/pt-I : Dated Aizawl, the 24thSeptember, 2021
Copy to:-

1. P.S to the Hon'ble Chief Minister i/c, Horticulture Department for favour of kind information and necessary action.
2. P.S to Addl. Chief Secretary, Horticulture Department for favour of kind information and necessary action.
3. Director, Horticulture Department for information and necessary action.
4. Director, I&PR, Mizoram, Aizawl for information with a request to publish the Tender Notice in 3 (three) Local Daily Newspapers for 3 (three) consecutive days. 20 spare copies are hereby attached. He is requested to refer the bills to the Director of Horticulture, Govt. of Mizoram for payment after duly certified.
5. Chief Informatics Officer, ICT Department, Mizoram Aizawl with a request to upload in the Government Website.
6. Guard File


(LALNUNPUII RALTE)

Under Secretary to the Govt.of Mizoram
Horticulture Department.

Proforma for Submission of Quotation

To,

The Director,
Department of Horticulture,
Mizoram, Aizawl.

Subject : Submission of Quotation against Tender No _____ Dt _____

Sir,

I/We have the honour to submit herewith my tender after having carefully examined and read the open tender for supply and installation of Ripening Chamber and the terms and conditions attached therewith.

I/We hereby express my/our interest for supply and installation of the same according to terms and conditions mentioned therein.

I/We enclosed herewith an earnest money deposit of Rs _____ in the form of _____ from _____ (Name of Bank) in favour of Director of Horticulture.

I/We certify that i/we have carefully read each and every terms and conditions and technical specifications laid down by the Department and understood the same and I/We confirmed our acceptance of the same.

I/We further certify that i have suppressed no fact in the quotation which could debar me to participate in the tender. If it is revealed after opening of the tender that any fact is suppressed by me, tendering authority shall have the right to reject my quotation.

I/We hereby declare that I am not black-listed by any Department/Agency of Central/State regarding quality compromise or any other reason in connection with similar work and there is no litigation with any Department/Agency of Central/State Govt. as on closing date of tender.

Date _____

Signature of Tenderer _____

Place _____

Name in Full of Tenderer _____

Address _____

Contact No _____

TENDER FORM-I
"Technical Bid"

TENDER FOR SUPPLY AND INSTALLATION OF RIPENING CHAMBER
UNDER INTEGRATED POST MHARVEST MANAGEMENT UNDER
MIDH 2019-2020 & 2020-2021

1. (a) Name of Tenderer :
(b) Registered Address :
(c) Contact No. :
(d) Email ID :
(e) Website :
2. (a) Manufactures Address :
(b) Contact No. :
(c) Email ID :
(d) Fax No. :
3. GST No. :
4. PAN No. :
5. (a) Name of Bank of Tenderer :
(b) Bank MICR Code :
(9 digit)
(c) IFSC :
(d) Account type :
(e) Name of Account Holder :
(f) Account No. :
6. Authorization/Dealership Certificate from
manufacturing Company (enclosed) :Yes/No
7. Diagram/Catalogue/Data Sheet with proper labeling (enclosed) :Yes/No
(See Para 4 of T&C)
8. Experience certificate enclosed : Yes/No
(See para 5&7 of T&C)

9. GST Provisional ID (enclosed) : Yes/No
(See para8 of T&C)
10. Govt. recognized Company/Firm/Agency Registration (enclosed) : Yes/No
(See para9 of T&C)
11. Earnest Money deposit in the form
of Demand Draft/ Bankers' cheque : Yes/No
(See para 12 of T&C)
12. Amount of Earnest Money Deposit (EMD) : Rs.....
(See para 11&12 of T&C)

Dated :

Signature
Full Name
Seal

(30)

**TERMS AND CONDITIONS FOR SUPPLY AND INSTALLATION OF
RIPENING CHAMBER UNDER INTEGRATED POST HARVEST
MANAGEMENT- MISSION FOR INTEGRATED DEVELOPMENT OF
** HORTICULTURE (MIDH), 2019-2020 & 2020-2021.**

1. Tender should be submitted in two envelope system clearly mentioning Bidders' Name, Address on both the envelopes. Envelopes should be superscribed "Technical Bid" or "Financial Bid" as the case may be and both envelopes are to be put in large sealed envelope superscribed as below:

"Quotation for Supply and Installation of Ripening Chamber under Integrated Post Harvest Management – MIDH, 2019-2020 & 2020-2021"

2. The sealed quotation should be addressed to :
*Director of Horticulture,
Mizoram, Aizawl.*

First Envelop should contain Sl No.3 -11 with Form I

3. Technical specification
 - a) **Ripening Chamber**
 - i. Each Ripening Chamber unit should be reasonably airtight with insulated walls.
 - ii. Temperature control system for cooling and/or heating
 - iii. An air circulation and ventilation system
 - iv. Humidity control
 - v. An ethylene gas injection system and
 - vi. An electric control system

- b) **Housing for Ripening Chamber**

To avoid wear and tear due to fluctuating weather conditions and for proper maintenance of the Ripening Chamber, housing facility for the Ripening Chamber is to be erected that may be of pre-fabricated material or constructed on-site with cemented flooring, brick walls, GI roof and necessary electrification.

- c) **Maintenance cost**

Initial maintenance and operational cost for a period of 1.5-2 years to be worked out in detail with a ceiling of Rs.1.00 lakh per unit and included in the project proposal.

d) Minimum Technical Specification

Particulars	Remarks
Civil Structure- Building Design	Structural Safety. Adherence to local Building Regulations. Concrete floor with sufficient load bearing capacity. Chamber size not smaller than 50 cuM for preventing building up of high concentration of ethylene.
Ripening Room Dimensions	Ripening Room dimensions will depend on number of tiers and number of pallets to be stored. On an average, 11M ³ per MT of banana fruits in ripening units for 10 MT capacity or larger and 12 M ³ per MT for ripening units of less than 10 MT capacity. For this purpose, volume of one chamber is taken into account
Ripening Room Construction	1)The airflow within the ripening rooms is to be designed to penetrate all boxes of fruit with an even airflow throughout the room resulting in all fruit being ripened uniformly. 2)Ripening rooms may be constructed of PUF (Poly Urethane Foam) panels or by application of suitable thermal insulation with vapour barrier and cladding on walls, floor and ceiling of civil structure. Panels are prefabricated building components filled with insulation, clad on both sides with facing materials and arranged with a jointing means to connect panels and may be preferred. In any case, inner chamber surface should be of food grade cladding. 3)The insulation envelope shall be designed to ensure that air pressure created by fans does not affect the integrity of the cold storage structure or the panel joints. 4)The height of wall panels is often such that care must be taken to ensure that adequate stability of the wall panels is maintained. If ceiling support are provided, the ceiling support system shall be connected to the main structure in a manner which takes into account. 5)The method of supporting the insulating ceiling panels, the position of the supports to avoid local over stress within the supports, the suspended ceiling or the main structure, the expansion and contraction of the main structure.

Ripening Room Doors	Ripening doors should be designed for minimal gas leakage.
Insulation Material	PUF panels are advisable for ripening chambers. Minimum 60mm thick up to 120mm thick (PUF) insulated sandwiched panel. Covering floor insulation with 100mm concrete is recommended Floor finish should be smooth with polymer coating so has to be kept clean.
Temperature & Humidity levels	Ripening is preferred at a lower temperature but above level of chilling injury. System has to be designed to achieve prescribed ripening conditions in terms of temperature and relative humidity for target fruits. General, RH level of 90-95 % is recommended to prevent moisture loss.
Heat Load Calculation and Refrigerant	Cooling and heating system needs to be designed based on heat load calculation. As per Kyoto Protocol standards, any eco-friendly refrigerant should be used.
Cooling/ heating coils and plenum chamber	Cooling coils are manufactured from copper or Stainless steel tubes and Aluminum Fins. The coils must provide exceptionally large surface area to ensure high natural humidity levels within ripening rooms. In case of ammonia as refrigerant, copper tube shall not be used. In case of a plenum chamber, cooling coils and fans must be easily accessible via single access hatch located above or at the end of the plenum chamber at roof level. Electrical heating elements should be used for heating ripening room during lower temperature season as per design requirement and be placed in easily accessible locations. Open flame type chamber heating should never be used due to explosive nature of ethylene. Fixing of the cooler shall be arranged to avoid disturbance of the ceiling panel support system.
Material to be used for ripening	Ethylene gas with suitable detection and dosing equipment to maintain ethylene concentration within required levels depending on product (Range 10 to 20 ppm)

Ethylene Generator and Dosing device	<p>Ethylene may be introduced in ripening chambers in one of the three ways by using independent ethylene generator with regulator, ethylene cartridge and ethylene-nitrogen mixture (5% ethylene+95% nitrogen) cylinder. Whichever method is used, the duty holder should ensure that there are adequate means of dispersing the ethylene gases throughout the ripening room on its release.</p> <p>If a generator containing ethanol based solution requires to be moved, it should be switched off, the mains cord removed from the socket outlet, and the manufacturer's instructions closely followed.</p> <p>It may be borne in mind that ethylene in concentration above 27000 ppm may explode.</p>
Specification for Air circulation system	<p>Minimum air flow should be 2000 m³ per hour, per MT of product ripened at 95%.</p>
Ventilation System	<p>When fruits are ripening, they release carbon dioxide which will build up in ripening room. The CO₂ production begins as the fruit ripens enters the "climacteric" phase, or the period when bananas release ethylene and have an elevated rate of respiration (along with a great deal of other physiological changes). Respiration involves the uptake of oxygen, the release of carbon dioxide, and the breakdown of starches. Carbon dioxide concentrations above 1% (10,000 ppm) will retard ripening, delay the effects of ethylene and cause quality problems. Suitable venting system consisting of fans/dampers/open-shut valves should be installed to maintain CO₂ concentration below 5000 ppm.</p> <p>In case of automatic forced air exhaust/ ventilation system with ducting, a dual inlet/ discharge damper operates in parallel with the fan to allow fresh air from outside the replace the air within the room when vent is required. Automatic exhaust fans (either timed or sensor based) or "flow-through" (constant) ventilation are provided at two locations(one near ceiling of chamber and another a little above floor level) in each chamber. This also evacuates the ethylene after the desires exposure period and helps to maintain CO₂ concentration low (below 5000 ppm) during the ripening cycle for proper ripening. In such cases, opening and shutoff actuators/ valves control is affected by CO₂ sensor and timer device.</p>

Sensor and Control devices	Suitable sensors are controlled devices should be used for maintaining temperature, Relative humidity, ethylene concentration and CO ₂ concentration. For this, temperature & humidity loggers and Ripening Chamber Air Analysis Kit (for Ethylene and CO ₂ levels) may be used.
Electrical plug point	For operating portable Ethylene Generator, an Electrical plug point is required inside the room. Metal clad Plug point in the Metal socket housing with the independent circuit breaker system, in order to isolate the system independent with the rest of the System, is recommended. For centralized gas emission, no electrical connections are required inside the room.
Pallet Racking and Material Handling	Ripening unit with multi-tier stacking should have a manually operated pallet lifting and carrying device. Pallet racking system comprises of box section construction which may be designed as per IS standard for strength and cleanliness, providing easy access for pallet loading at high level.
Some useful Appliances and Instruments	Weighing Scales and Fruit inspection Instruments such as Weighing Scale, Firmness Tester, Refractometer, Sizers and Callipers, Produce Knife and other relevant equipment.
Safety Certification	Various fire detection and prevention systems and devices are commercially available and must be included in the project proposal. They include detectors for heat and smoke; fixed water-sprinkling system, inert gas snuffing system, smoke release valves, flameproof barriers, fire brakes formed by the separation of chambers, fire extinguishers etc. All devices used shall have been tested at low temperatures and shown to be satisfactory. Certification for safe storage of ethylene and system for prevention of ignition and explosion from competent authority, as per statutory requirement, if any, must be taken. Similarly, safety for workers against suffocation must be ensured. Certification from following Certification Authority is necessary. <ol style="list-style-type: none"> 1. Factory Inspector. 2. Fire Fighting Inspector. 3. Electrical safety Inspector.

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4. Supply of the Ripening Chamber must be as per the specifications and designs mentioned. Diagrammatic Plan, Catalogue and Data sheet should be submitted along with bid documents.
 5. Firms should have experience in installation and operation of Ripening Chamber for horticulture commodities, adopting advanced and latest technologies and certificate to this effect should be attached.
 6. Warranty period of the contract shall be 1(one) year from date of completion of installation of the material on working condition.
 7. Firm/ Company having experience in such similar field with proof of experience will be given priority.
 8. The Firm/ Company should have GST Provisional ID which must be supported by relevant document.
 9. The Firm/ Company should have company registration no. issued by competent Authority/ Agency of the Govt. of India which must be supported by relevant documents.
 10. The EMD of 1.25% of quoted amount in the form of bank draft/ banker cheque duly pledged in favour of Director of Horticulture, Govt. of Mizoram, Aizawl should be submitted along with Technical bid. Release of the same may be done as per rule by the Department after finalization of tender.
 11. The Firm/ Company must have a turnover of at least 2 crores average over the last 3 financial years which must be supported by relevant documents.
 12. The requirement for Supply and Installation of Ripening Chamber is for Post Harvest Management implementation under 2019-2020 & 2020-2021 with fund provision of Rs. 50.00 lakh & Rs. 100.00 lakh, total amounting to Rs. 150 lakhs.
 13. **Performance Security :-**
 - i. The successful tenderer, if awarded contract/ supply/ work, must deposit Performance Security in favour of Director of Horticulture in the form of Draft/Banker's Cheque of amount 5% of Contract/Supply/ Work Order amount within two weeks from issue of Work/Supply order.
 - ii. The Performance Security will be liable to be forfeited if the Contractor/Supplier breaks/ withdraws/ amends/ impairs or derogates from the tender in any respect.

- iii. The Performance Security shall be released to the contractor/supplier by the Department only after expiry of warranty period provided the materials have been delivered and installed in working condition to the full satisfaction of the Department.
- 14) The Department reserves the right to accept or reject any quotation to be in its best interest and is not bound to accept the lowest rate and need not assign any reason(s) thereof for its non-acceptance.
- 15) Any firm that has been awarded contract shall not in any manner whatsoever handover or assign the work to any other sub-agency or third party without prior approval of Director of Horticulture, Mizoram, Aizawl.
- 16) No advance payment will be made for supply of the Ripening Chamber Unit and its installation.
- 17) Payment will be made only after full installation of the item in working condition whatever the case may be, on submission of completion certificate/ Bill accompanied by tax clearance certificate duly certified by competent authority.
- 18) Information regarding litigation, exertions and blacklisting, if any, shall be submitted with details to enable evaluation by the committee.
- 19) Non-compliance of any of the tender terms and conditions will result in rejection of the tender.
- 20) In the event that any dispute or differences arises between two or more bidding firms, the Department will have no involvement whatsoever. However, in case of differences or dispute by a firm or firms against the Department, the matter may be settled through mutual and amicable discussions. Only if such differences cannot be resolved through dialogue, the matter may then be resolved through the court of law of the State of Mizoram jurisdiction only.
- 21) The financial bid of only tenderer(s) who are technically qualified will be opened.
- 22) Second Envelope should contain – “Financial Bid” with Form -II
Rates for Ripening Chamber unit should be quoted clearly both in figure and in words and any over writing should be clearly initiated by the quotationer(s) with date. Rate for Ripening Chamber unit should be inclusive of all taxes, commissioning, transportation/ shipping, packaging, insurance, unpacking, loading and unloading, labours, managerial works and installation.

TENDER FORM-II
"Financial Bid"

TENDER FOR SUPPLY AND INSTALLATION OF RIPENING CHAMBER
UNDER INTEGRATED POST HARVEST MANAGEMENT
- MIDH 2019-2020 & 2020-2021

1. Name of Tenderer :
2. Address of Tenderer :
3. Contact No. :
4. Rate quoted f.o.r destination :

Sl. No.	Items	No. of Unit	Rate/Unit	TOTAL (Rs.)
1.	Supply and installation of Ripening Chamber under Integrated Post Harvest Management of MIDH.	1 No.		
2.	Goods and Services Tax (GST).....%			
3.	Handling charges			
4.	Installation charges			
	GRAND TOTAL			

(Rupees) only

Dated :

Signature

Full Name

Seal