From,

Mission Director,
Haryana State Horticulture Development Agency,
Panchkula.

To,

1. All Joint Directors Horticulture in the state.
2. All Deputy Directors Horticulture in the state.
3. All District Horticulture Officers/Member Secretary, DHMIU in the State.

Memo no. 23124 - 166 /Hort.-APO/P-14/24/2023-24/Dated: 25/08/2023

Subject: **Norms and guidelines of protected cultivation in the Haryana State for the year 2023-24 – reg.**

Refer to the subject as cited above, find enclosed herewith the norms and guidelines of protected cultivation in Haryana under all schemes (MIDH, IHD and SCSP) for the year 2023-24. Further, it is intimated that:

1. Application of previous year which are in seniority list (subject to condition that documents are complete as per norms and guidelines), shall be given preference and sanction shall be given as per seniority order.
2. DHO shall sanction the cases of protected cultivation as per targets allotted to them and as per norms & guidelines of the scheme.
3. DHO shall also submit the copy of sanction letter specifying the name & address of farmer, area & type of structure and mode of construction (self or name of empanelled firm). Further, DHO shall also submit the report of completion of structure in the format below:

S n.	Ye ar	Name of Scheme (MIDH/ IHD/SC SP)	Distr ict	Name of Benefic ary & Address (Sh/Smt .)	Farmer Category (General/ SC)	Type of Greenhous e (NVPH/H TGH /INH/PNH / CNH/WIT)	Are a (Sq m)	Total Cost of Struct ure (Rs.)	Sanction/ Admin date (DD/MM/ YY)	Name of Firm/S elf	Date of final Inspect ion (DD/M M/ YY)	Area of Structu re during final inspect ion (Sqm.)	Total Subsi dy Amo unt (Rs.)

4. The issues in accordance of approval from competent authority on dated 21.08.2023.

Encl.: as above.

25/08/23

SMS/ Protected
for Mission Director,
HSHDA, Panchkula

Memo no. 23167 - 175 /Hort.-APO/P-14/24/2023-24/ Dated: 25/08/2023

A copy of above is forwarded to following for information:

1. M/s Best Deal Agrotech, Karnal
2. M/s Jeet Water Bank Pvt. Ltd., Kurukshetra

3. M/s Kissan Agrotech, Karnal
4. M/s Kisan Sewa Agrotech Pvt. Ltd., Bhiwani
5. M/s Renuka Agricare, Karnal
6. M/s Sehgal Sanitary & Pipe Store, Karnal
7. M/s Future Agrotech, Bhiwani
8. M/s Agricare, Bhiwani
9. M/s Earth Agro Structures Pvt. Ltd.

25/08/23

SMS/ Protected
for Mission Director,
HSHDA, Panchkula

CC:

1. Sr. Accounts Officer at HQ.
2. Accounts Officer at HQ.
3. Budget Officer at HQ.
4. PS to DGH.
5. PA to MD, HSHDA.
6. IT branch to upload the guidelines on the portal.

PROTECTED CULTIVATION IN HARYANA

Norms & Guidelines

2023-24

DEPARTMENT OF HORTICULTURE, HARYANA
UDHYAN BHAWAN, SECTOR – 21, PANCHKULA, HARYANA
www.hortharyana.gov.in

Index

Chapter – 1
Cost Norms & Govt. Assistance

1.1 **Introduction**: Protected cultivation is a farm practice in which crops are grown in a controlled environment. In this farming method, all the essential factors such as temperature, humidity, light, and others, are regulated as per the crop's growth needs. There are many types of protected structures available such as greenhouse, plastic tunnel and mulching, advance horticulture units like hydroponic & aeroponics etc. Protected Structures/Greenhouses are frames of inflated structure covered with a transparent material in which crops are grown under controlled environment conditions in order to create favourable micro-climates, which favours crop production all through the year or part of the year as required.

1.2 **Cost Norms**: The following cost norms are applicable under all schemes of Department throughout Haryana:

Table-1: Cost norms of Protected Structures/component

Sn.	Type of Structure	Size/Area	Unit Rates (Rs./sqm)	Subsidy %age	Subsidy amount (Rs./sqm)	Remarks
A.	**Green Houses**					
1.	Naturally Ventilated Polyhouse (NVPH)	upto 500 sqm	1060	50	530	• Max. limit for availing assistance is for an area of 4000 sqm. • In case of landowner SC Category farmer, the rate of assistance is 85%. • In case of lease by SC Category farmer, the rate of assistance is 65%. • In case of lease by General Category farmer the assistance is 50%. • Component at sr. no. 5 & 6 are included as per approval of Govt. vide note dated 08.07.2022.
		500 to 1008 sqm	935	50	467.5	
		1008 to 2080 sqm	890	50	445	
		2080 to 4000 sqm	844	50	422	
2.	Hi-Tech Green House (HTGH)	upto 500 sqm	1650	50	825	
		500 to 1008 sqm	1465	50	732.5	
		1008 to 2080 sqm	1420	50	710	
		2080 to 4000 sqm	1400	50	700	
3.	Walk-in-Tunnel (WIT)	Upto 4000 sqm	600	50	300	
4.	Anti-Insect Net House (AINH)/ Shade Net House (SNH)	upto 500 sqm	710	50	355	
		500 to 1008 sqm	710	50	355	
		1008 to 2080 sqm	650	50	325	
		2080 to 4000 sqm	630	50	315	
5.	Poly Net House (PNH)	upto 500 sqm	710	50	355	
		500 to 1008 sqm	710	50	355	
		1008 to 2080 sqm	710	50	355	
		2080 to 4000 sqm	710	50	355	
6.	Cable Purlin Net House (CNH)	1008 to 2080 sqm	525	50	262.5	
		2080 to 4000 sqm	500	50	250	
B.	**Replacement of cladding material**					
1.	**Polyhouse**	Upto 4000 sqm	153	70	107.10	• Max. limit for availing assistance is for an area of 4000 sqm. • The cost of replacement of cladding material includes cost of Plastic Sheet, Insect Net on sides & top, shade net, bottom apron, Springs, fitting
2.	**Net House**					
	with plastic top as addition; > 4.00 meter height,	Upto 4000 sqm	114	70	79.80	
	dome shape; > 4 meter height,	Upto 4000 sqm	97	70	67.90	
	flat shape- all GI; > 4 meter height,	Upto 4000 sqm	97	70	67.90	
	flat shape- cable purlin; > 4 meter height,	Upto 4000 sqm	97	70	67.90	
3.	**Walk-in-Tunnel (WIT)**					

	Size 600 sqm	Upto 4000 sqm	122.75	70	85.92	material like clumps. • The poly house must be in the name of applicant/legal heir for assistance.
	Size 400 sqm	Upto 4000 sqm	145	70	101.50	
	Size 400 sqm with *top vent* height more than 4.25 mtr	Upto 4000 sqm	165	70	115.50	
	Size 560 sqm with top vent height more than 4.25 mtr	Upto 4000 sqm	156	70	109.20	
C.	**Plastic tunnel**					
	GI wire semicircle structure connected with wires and covered with plastic sheet *or* Fiber stick semicircle structure connected with wires and covered with Plastic sheet	Upto 10,000 sqm	29	50	14.50	• Max. limit for availing assistance is for an area of 10,000 sqm. • The **area covered only** under plastic tunnel shall be admissible for release of subsidy. • If beneficiary doesn't install GI wire-2 mm (3 nos. wires required- one on top and two both sides) for supporting to covered material and semicircles mentioned above then **pro-rata @ Rs. 2/- per wire per sqm.** shall be deducted from the unit cost. • In case of non-installation of plastic clamps **Rs.2/- per sqm** shall be deducted from unit cost.
	GI wire semicircle structure connected with wires and covered with Non woven fabric *or* Fiber stick semicircle structure connected with wires and covered with non-woven fabric	Upto 10,000 sqm	25	50	12.50	
D.	**Plastic Mulching**	Upto 20,000 sqm	3.20	50	1.60	• Max. limit for availing assistance is for an area of 20,000 sqm. • Thickness of the film/mulch (Polyethylene) should be minimum 30 micron. (IS 17216:2019)
E.	**Hi-Tech Horticulture Units**					
1.	**Aeroponics unit (including Hi-tech green house, multipurpose and storage chamber)**	upto 1000 sqm	14347	35	5021.45	• Max. limit for availing assistance is for an area of 1000 sqm.
2.	**Hydroponics unit**	upto 4000 sqm	3450	35	1207.5	• Max. limit for availing assistance is for an area of 4000 sqm.

3.	**Hi-tech customized triple layer flat roof net house**	upto 4000 sqm	1625	50	812.5	• Max. limit for availing assistance is for an area of 4000 sqm.
F.	**Anti-Bird Net**					
1.	**Anti-Bird Net**	Upto 5000 sqm	35	50	17.5	• Max. limit for availing assistance is for an area of 5000 sqm.

- The farmer is free to negotiate the rates of greenhouse from the empanelled firms through whom they want to construct the structure. The subsidy shall be given on unit rates fixed by the department or negotiated rates/cost, whichever is lower.

Chapter – 2

Guidelines

2.1. <u>How to apply and documents requirement</u>: The farmer has to apply online on Hortnet portal for generation of application number as per document checklist given in Table-2 below.

i. Farmers shall follow the instructions of Soil & Water testing laboratory in case of installation of greenhouse as indicated in Table-2.

ii. The following are prerequisite for availing subsidy for protected cultivation.
   a. Registration on "Meri Fasal Mera Byora" (MFMB) portal.
   b. Parivar Pehchan Patar (PPP).
   c. SC Certificate, if required.

iii. On submission of complete documents as indicated in table below, the application shall be processed & approved as per targets and the seniority shall be maintained from the date of approval.

iv. DHO will ensure that documents are complete as per following document checklist for application, sanction and assistance released under the scheme:

Table-2 Document Check List for Application, Sanction & Assistance Release

	Content		**Components**	
		Purpose	**Greenhouses and Hi-tech Horticulture Units**	**Plastic Mulching, Plastic Tunnel, Replacement of Cladding material, Anti Bird Net**
1	**2**	**3**	**4**	**5**
A.	**For Application and Sanction.**			
1.	Farmer registration and online application		Mandatory	Mandatory
2.	Parivar Pehchan Patar (PPP) – Registration No. along with acknowledgment slip		Mandatory	Mandatory
3.	Registration no. of MFMB Portal – Registration No. along with acknowledgment slip		Mandatory	Mandatory
4.	Bank Detail (Beneficiary Name, Bank Name, IFSC code, Account No.)	For online fund transfer as DBT	Mandatory	Mandatory
5.	Scheduled caste certificate, if applicable	For identification	Mandatory	Mandatory
6.	Final inspection report/date of installation of protected structure, in case of replacement of cladding material.	To verify the structure is minimum 03 years old	N/A	Mandatory in case of Replacement of Cladding material only
7.	Training Certificate		Mandatory	N/A
8.	Cost Estimate (by empanelled firm or in case of self-construction estimate is to be attested by Structural Engineer)	For cost estimation	Mandatory	N/A
9.	Structure Design (by empanelled firm or in case of self-construction estimate is to be attested by Structural Engineer)	For design	Mandatory	N/A
10.	Soil and water test report	For site suitability	Mandatory	N/A
11.	Nematode Test report	For site suitability	Mandatory for green houses except soilless cultivation	N/A
12.	Undertaking for maintaining structure for 05 years (**Annexure –5A**)	Utilization of structure	Mandatory	N/A
13.	Land Lease deed (if applicable)	Proof of leased land	Registered land lease deed	Undertaking by landowner and lessee
B.	**Site verification by HDO**			
1.	Upload of Annexure – II	Authentication of farmer and land	Mandatory	Mandatory
C.	**Release of Govt. assistance**			
1.	Proof of Farmers Share/Full payment to firm	Payment to farmer or firm	Mandatory in case of installation of greenhouse through empanelled firm	N/A
2.	Site verification /Physical inspection report	To check completion of work	Mandatory	Mandatory
3.	Site photograph with beneficiary	For site & applicant identification	Mandatory	Mandatory
4.	GPS Coordinate	For location identification	Mandatory	Mandatory

5.	GST Bill & E-way bill	Bill for payment	Mandatory	Mandatory
6.	Insurance	Compensation against natural calamity	Mandatory	N/A

2.2. Greenhouse and Hi-tech Horticulture Units:

- Greenhouse includes Naturally Ventilated Poly House (NVPH), Hi-Tech Green House (HTGH), Walk-in-Tunnel (WIT), Anti-Insect Net House (AINH)/ Shade Net House (SNH), Poly Net House (PNH) & Cable Purlin Net House (CNH).
- Hi-tech Horticulture Units includes Aeroponics unit (including Hi-tech green house, multipurpose and storage chamber), Hydroponics unit & Hi-tech customized triple layer flat roof net house.

2.2.1. Eligibility of the applicant:

a. Any individual farmer having land ownership in Haryana State is eligible to avail Govt. assistance under the schemes.
b. Lease holders are also eligible in case of greenhouse only as given below: -
    i. In case of lease, the registered land lease for a period of minimum 6 years shall be required for lessee farmers from the date of application. The lessee farmer has to maintain structures for 5 years at his field after construction, failing which both land owner and lessee farmer shall not be eligible for future assistance on this component and recovery proceedings shall be initiated.
    ii. The prevailing rate of assistance for greenhouse shall be applicable which is as on date 50 per cent for general farmers, however, for SC lessee farmer the assistance is @65%.
    iii. In case landowner has already taken assistance, then lessee farmer shall not be eligible on the same land and vice-versa to avail Govt. assistance for the construction of new green houses for a period of at least 5 years.
    iv. The maximum area limit for availing Govt. assistance has been fixed per beneficiary and shall be applicable for both the landowner and lessee farmers, it means the landowner and lessee farmers collectively shall be eligible for applicable area for Govt. assistance. For example, in case of greenhouse, both landowner and lessee farmers can collectively eligible for the maximum area limit is 4000 sqm area.
c. Only those applicants are eligible to apply who did not availed assistance on account of Protected Cultivation in his/her name/spouse name or in name of dependent member of his/her family from any Government agency.

2.2.2. Training (for Construction of greenhouse and hi-tech horticulture unit)**:** It is mandatory for the farmers to have training certificate/ minimum three days training-cum-workshop regarding awareness on Protected Cultivation, issues related to Cultivation, Construction and Maintenance of green houses. However, following are eligible for sanctioning of cases of greenhouse/ hi-tech horticulture unit w.r.t. training certificate related to operation of greenhouse under all departmental scheme throughout Haryana State:

a. The person in whose name the application has been registered for installation of green house.
b. Any family member included in the Parivar Pehchan Patra (PPP) of the applicant.

c. Farm Manager/Greenhouse Manager operating under the applicant. In case of Farm Manager/Greenhouse Manager, the applicant has to submit an undertaking (in the notarized stamp paper of Rs. 10/-) that he has authorized Farm Manager/Greenhouse Manager to operate his greenhouse and has to submit the PPP of Farm Manager/Greenhouse Manager as well.

2.2.3. **Start of work**: The farmer can start the construction work only after issuance of sanction letter.

2.2.4. **Sanction:** The cases shall be entertained on First Come First Serve Basis. The sanction shall be issued as per norms & guidelines and availability of budget. All the structures sanctioned during current financial year should be completed during same financial year. The validity of sanction letter shall be **90 days** or 31st March (Last day of financial year), whichever is earlier from the date of issue. If farmer does not start construction work within 30 days after sanction, then sanction shall be considered cancelled automatically. DHO will maintain proper record of it.

2.2.5. In case of bankable projects, the financing banks may refer booklet on 'Model Bankable Project on Protected Cultivation in Haryana' published by NABARD, Haryana Regional Office, Chandigarh for issue of loan sanction letter and appraisal report. For release of assistance, the priority shall be given for the projects that are completed at due time. The assistance will be released upon availability of funds.

2.2.6. **Construction of Green House/ Hi-tech Horticulture Units**: Farmer can undertake installation activity only after issuance of sanction letter from department either in self-capacity or through any empanelled firm.

a. The work of installation shall be completed within a maximum period of **90 calendar days.** The start of period shall be counted from the date of issue of sanction letter. The farmer is fully responsible to supervise the execution of the work of his/her structure and responsible for quality and minimum standards/specifications applicable under the departmental scheme.
b. The farmer will be free to get the protected structure constructed from any empaneled firm of their choice after following the due procedure and in such case the farmer has to provide suitable site, water and electricity only to the firm. Minimum technical specifications standardized by the Department shall be followed by the firm.
c. The farmer is advised to collect the sample of material used in greenhouse by firm and may get tested their material used in protected structures from Central Institute for Plasticulture Engineering and Technology, Murthal, Distt.-Sonepat, Haryana or any other Govt. recognised institutes.

2.2.7. **Inspection:** The inspection shall be carried out by already constituted Departmental inspection team/ committee or Third-Party Inspection (TPI) Agency hired by the Department, whichever is applicable as per instructions of HQ. The GPS coordinate of each and every site shall be taken and to be mentioned in inspection proforma enclosed. In case of bankable cases representative from bank shall be also be included in the inspection team.

a. **First Inspection**: First inspection shall be carried out after supply of material and completion of foundation work. This inspection will be conducted after intimation by the farmer in written to DHO with assurance that the material supplied is as per component list and the foundation work is complete as per

departmental specifications and quantity as per design excluding cladding material. The farmer will keep representative sample of all the components. The Departmental Committee/TPI Agency may check any of the used material at site and farmer has to facilitate it.

b. **Second & Final Inspection:** The Final inspection shall be conducted by Departmental Committee / TPI Agency after completion/repair of structure in all respect & as per norms & guidelines of the Scheme. The inspection report in prescribed proforma shall be submitted to concerned DHO/ MS DHMIU for release of subsidy. Site photograph with beneficiary must be attached with physical verification report. The intimation of first and final inspection shall be conveyed to financing bank as the case may be.

Third-Party will conduct physical inspection in the presence of following additional members:

i. Farmer concerned.
ii. HDO concerned.
iii. Banker concerned, if applicable.
iv. Authorized representative of firm, if applicable.

Above members will also sign the inspection report with their remarks, if any.

2.2.8. <u>Insurance of Green House/Hi-tech Horticulture Units</u>: The insurance of greenhouse/Hi-tech Horticulture units are mandatory in all cases (construction through empaneled firm or self-construction). The cover note will be in the name of beneficiary by covering all risks thereof.

2.2.9. <u>Proof of farmers share</u>: Farmer share/full payment to firm is required to be released by the farmer to the firm through bank transaction. In support of this transaction, self-attested copy of bank statement is to be submitted by farmer before release of subsidy.

2.2.10. <u>Release of assistance</u>: The assistance shall be released to farmer after completion of structure/installation of material in all respects. The assistance shall be calculated based on the cost and assistance limit fixed by the Department. No assistance shall be given on GST. Farmer has to bear the cost of GST.

a. **Self-financed Projects**: The assistance shall be released directly in the aadhar seeded bank account of beneficiary through DBT only in single instalment after completion of structure in all respects and submission of following documents

i. Completion certificate
ii. Final inspection report alongwith Site photograph with beneficiary
iii. GST Bill of material used alongwith E-Way Bill

- Release is subject to availability of funds. Any amount that may be withheld, due to any shortcoming, shall be released on removal of shortcomings. The penalty if any shall be **<u>deducted</u>** accordingly. Farmer shall be fully responsible for quality and quantity of material used and also for maintenance and repair thereof.
- The details regarding GST & E-way Bill has been described in subsequent chapters.
- In case of greenhouse construction by the firm, GST bill with HSN code 94069010 is acceptable, since as per GST laws, greenhouse as a whole is supplied by the firm to the borrower/farmer.

- In case of construction of greenhouse in self-capacity by the farmer, the GST Bills should include the HSN code of individual material. For Govt. assistance purpose, the labour bills/receipt shall not exceed more than 15% of the total cost of the structure (without GST). Further, the farmer shall maintain the attendance register of labours involved in construction of greenhouse/hi-tech horticulture unit in the prescribed format (Annexure – 5D) and shall keep aadhar card of the labours involved. The concerned DHO shall keep the record of attendance of labour maintained by farmer in his file.
- In case of construction in self-capacity, the beneficiary has to maintain the record of payments (online/offline) made to manpower/labour engaged in the form of receipt having signature of labour on revenue stamp. The concerned DHO shall keep its record in his file.
- The subsidy @15% of total cost of structure will be withheld in case the farmer fails to submit the record of labour involved in construction of greenhouse and shall be released only after submission of attendance record of labour in the prescribed proforma and record of payment made to manpower. The submission of record, in this regard should be within 03 months or within current financial year, whichever is earlier.

b. **Bankable projects**: A stakeholders' meet on protected cultivation was held on dated 05-05-2014 in NABARD office. It was decided that in bankable projects only farmer share shall be financed and release of assistance in case of such bank financed project shall be as follows:

- **Release of assistance from DEPARTMENT to bank**
  - **First Instalment**: DEPARTMENT will release 50% of total eligible subsidy to the bank just after issue of sanction letter in subsidy reserve fund/ account of financing bank.
  - **Second Instalment**: Second instalment shall be based on satisfactory second inspection report and amount worked out on the basis of completion of structure and penalty if any. This amount is to be released to the bank after final inspection report.
- **Release of assistance from bank to beneficiary**
  - The bank shall release assistance to the farmer. The assistance shall be released as one instalment on the basis of final inspection report and insurance policy if any.
  - The bank will submit the utilization certificate of released subsidy to DHO/ MS, DHMIU concerned.
  - The balance lying to the credit of the subsidy reserve funds A/c will not form the part of the Demand and Time Liabilities for the purpose of SLR/CRR. Suitable instructions in this regard by the **RBI** from time to time would be followed.
  - General Conditions
    - **Margin:** 10% of the project cost
    - **Repayment:** 5 to 7 years
    - **Reference:** Codified Farm Credit Circular No. 01/13 dated 15.01.2013

2.2.11. Farmer Liability

a. Land should be suitable for installation of protected structures.
    i. The dimensions of the structure should fall within area as per revenue record and *sizra*.
    ii. The source of irrigation water is available at site.
    iii. The soil & water of site are suitable for crop cultivation. Therefore, farmer must get soil and water test report of the site.
    iv. The proposed site for structure should free from any kind of obstacles. It has minimum distance of 6.5 m or equal to height of boundary wall/other structure whichever is higher from these structures and minimum distance of 5 m from electric pole and wires and to avoid site through which electric wires crisscross, if any.
    v. The site should not prone to water stagnation.
    vi. Water table should not be so high to affect foundation and subsequent cultivation at site.
    vii. The site must have efficient drainage facility.
b. The farmer will be fully responsible to maintain the structure and cultivate the crops. The beneficiary is bound to utilize the protected structure (NVPH/HTGH/INH/WIT/ Aeroponics unit/ Hydroponics unit/ Hi-tech customized triple layer flat roof net house) for a minimum of 5 years period after the completion of structure, failing which the beneficiary is bound to return the assistance provided to him & legal action shall be initiated against the defaulting farmer. In this regard, the concerned beneficiary undertakes the purposeful utilization of structure. Farmer will take care of structure and maintain for a period of 5 years and will not misuse, change/ modify/ remove/ dispose/ sale the structure.
c. In case of any beneficiary is found violating the norms of minimum tenure then he/she will be liable to be penalized for the recovery of subsidy on the basis of depreciation value of that particular asset. Undertaking shall be signed by the farmers. In case, the beneficiary fails to deposit the subsidy amount back to Govt. then civil proceedings shall be initiated against the defaulting beneficiary.
d. The beneficiaries should avail training regarding maintenance of structure and crop cultivation in protected structure from department of Horticulture or other reputed Institute.
e. The insurance of protected structure (NVPH/HTGH/INH/WIT/ Aeroponics unit/ Hydroponics unit/ Hi-tech customized triple layer flat roof net house) shall be the responsibility of farmer. Department shall not be responsible for cropping plan yield, crop damage, damage to structure etc. what so ever the reason may be.
f. The farmers/beneficiaries may get tested their material used in protected structures from Central Institute for Plasticulture Engineering and Technology, Murthal, Distt.- Sonepat, Haryana or any other Govt. recognised institutes.
g. It is assumed that Govt. assistance is provided to the desired beneficiary. In case of any misleading information/facts from beneficiary or by mistake, the beneficiary has to refund assistance amount back to the Government/DEPARTMENT.
h. For any kind of dispute the jurisdiction shall be of concerned district headquarter only.

2.3. <u>Replacement of cladding material/ Plastic Mulching/Plastic Tunnel/ Anti-bird net</u>:

2.3.1. <u>Eligibility of the applicant</u>:

a. For plastic tunnel & plastic mulching, the beneficiary can be landowner, lease holder or tenant. The subsidy to beneficiary, who is not landowner, shall be given upon consent letter/ affidavit of landowners (Annexure-5C).

b. For replacement of cladding material, the farmer must be the owner of the greenhouse. The assistance will be eligible on 3 years old green house. The age of green house will be ensured on the basis of its final physical verification in case of installed under any subsidy scheme. In case the applicant installed greenhouse without any Govt. subsidy, will also be eligible for assistance under the programme, however he/she has to produce of date of installation of greenhouse to ascertain the age. In case of death of owner of greenhouse, next claimant has to submit an undertaking regarding his claim on greenhouse alongwith supporting document of land ownership in which greenhouse is installed.

c. For Anti-bird net, the applicant must be the owner of land in the state of Haryana.

2.3.2. <u>Start of work</u>: The farmers must start the work only after sanction of application.

2.3.3. <u>Sanction</u>: The cases shall be entertained on First Come First Serve Basis. The sanction shall be issued as per norms & guidelines and availability of budget. The sanction shall be valid upto 30 days and if the material is not installed at the site or greenhouse is not repaired within prescribed time limit (30 days), sanction shall be considered cancelled automatically.

2.3.4. <u>Inspection</u>:

- The inspection of replacement of cladding material component shall be carried out by already constituted Departmental inspection team/ committee or Third Party Inspection (TPI) Agency hired by the Department, whichever is applicable as per orders received from HQ. The GPS coordinate of each and every site shall be taken and to be mentioned in inspection proforma enclosed. The inspection report in prescribed proforma shall be submitted to concerned DHO/ MS DHMIU for release of subsidy. Site photograph with beneficiary must be attached with physical verification report. HDO concerned and farmer will be present during inspection and will sign inspection report with their remarks.
- The inspection of components like plastic low tunnel, plastic mulching and anti-bird net shall be carried out by a committee of DHO, HDO and Field Supervisor. The inspection shall be carried out after application of plastic mulch or tunnel or anti-bird net in the field in all respect & as per norms & guidelines of the Scheme.

2.3.5. <u>Release of assistance</u>: The assistance shall be released to farmer after installation of material/repair of greenhouse in all respects. The assistance shall be calculated based on the cost and assistance limit fixed by the Department.

a. The assistance shall be released directly in the aadhar seeded bank account of beneficiary through DBT only in single instalment after installation of material/repair of greenhouse in all respects and submission of following documents

i. Final inspection report alongwith site photograph with beneficiary

ii. GST Bill of material used alongwith E-Way Bill

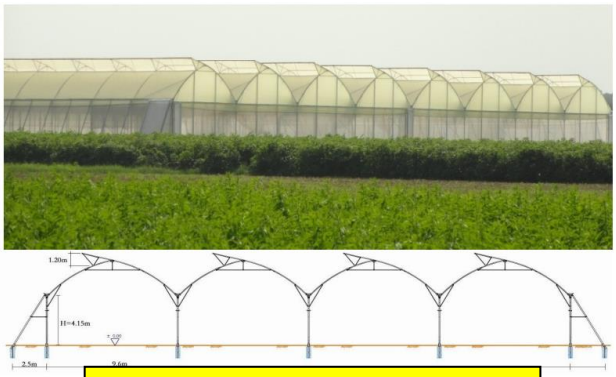
b. Release is subject to availability of funds. Any amount that may be withheld, due to any shortcoming, shall be released on removal of shortcomings. The penalty if any shall be **deducted** accordingly. Farmer shall be fully responsible for quality and quantity of material used and also for maintenance and repair thereof.

c. The details regarding GST & E-way Bill has been described in subsequent chapters. The GST Bills must include the HSN code of individual material.

Chapter – 3

Structure design and its component

- There are different type of structure and design of greenhouse based upon the suitability and adaptability in a specific agro-climatic region.
- The chapter has been included for the knowledge or to provide an idea of type of structure, design and components of a greenhouse.

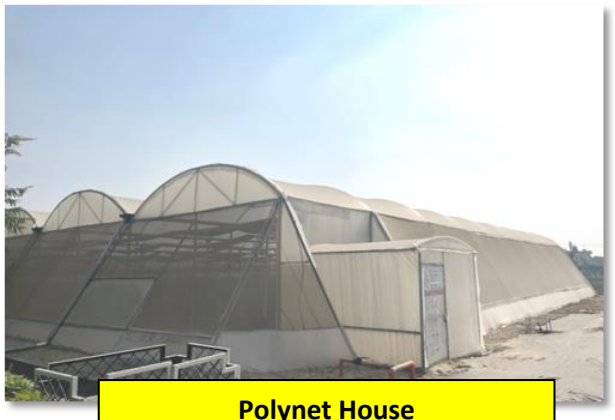


Naturally Ventilated Poly House

Hi-tech Green House

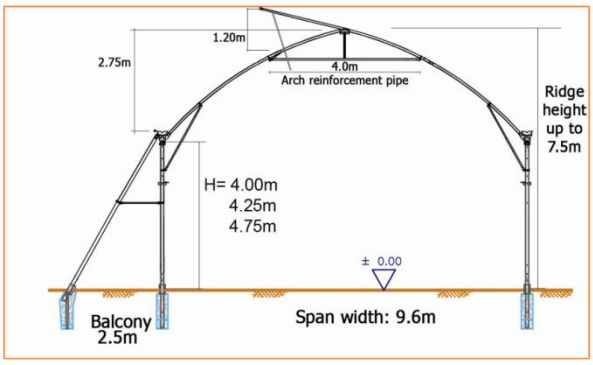
Walk in Tunnel

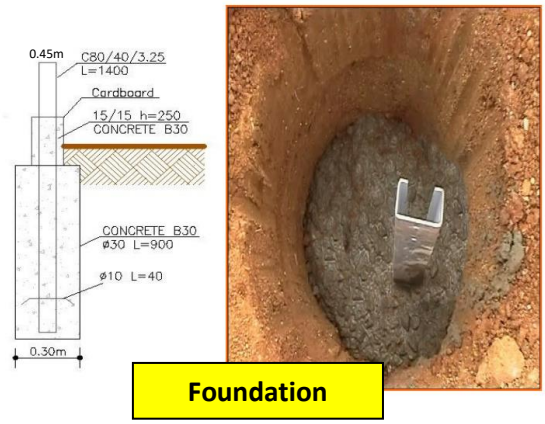
Anti-Insect Net House



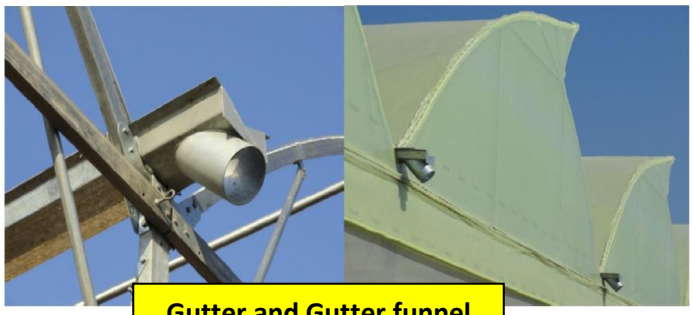
Polynet House

Schematic Diagram of Classic 9.60 Fix vent without roof curtain





Foundation



Gutter and Gutter funnel

Column

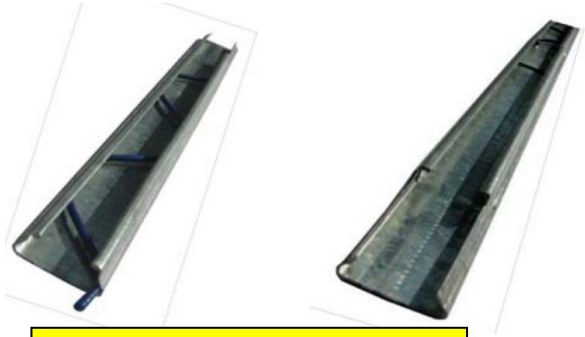
Support

Arches

Hockey

Net Pulley

5 way Junction Plate

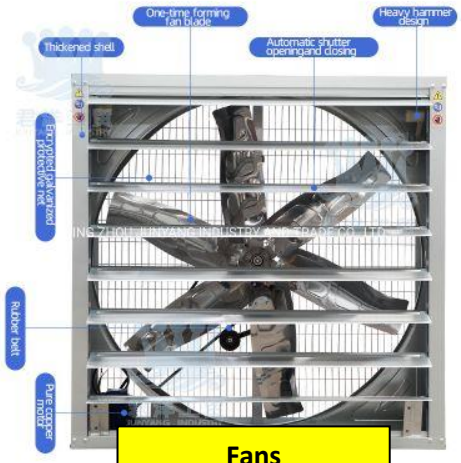


Profile and ZigZag Spring Insert

Top Vent

Trellising System

Cooling pads



Fans

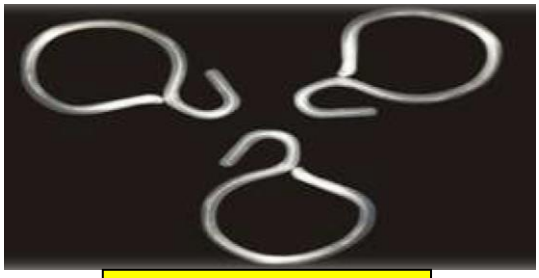
Insect Net (40 Mesh)

GI Clamps

Green shade net

White shade net

U clamps



Ring Hooks

Chapter – 4

Specifications

The technical specifications are indicative. The beneficiary are free to use the material of higher standard and improved design, however, the assistance shall be given as per rates fixed by the department and additional cost if any, shall be borne by the farmer.

4.1 Indicative Technical Specifications of Naturally Ventilated Polyhouse (NVPH)

S.N.	Items	Description/ Specification
1.	Structure	Naturally Ventilated Greenhouse
2.	Size	500 m^2 to 4000 m^2 (Area as per requirement)
3.	Bay size	8m x 4m, 5m x 5m with 4 side hockey 2 mtr
4.	Ridge height	6.5m to 7m
5.	Ridge Vent/Top Vent	80-90 cm opening fixed with 40 mesh nylon insect Screen
6.	Gutter height	4 – 4.5m from floor area
7.	Gutter slope	2% slope need be provided in civil foundation work/ structure. Maximum gutter length should be 40 m. In case the length is more than 40 m, then double sided slope should be given.
8.	Gutter Material	1.80 mm thick GI with 220 GSM Galvanization. Size of gutter 40 cm width (end to end) with 20 cm overlapping at joints.
9.	Structural design	The structural design need to be sound enough to withstand wind speed minimum 120 km/hr minimum load of 25 kg/m^2. There should be provision for opening one portion at either side for entry of small tractor/power tiller for intercultural practices. The firm needs highlight design features and list of greenhouse clients.
10.	Structure	Complete structure made of galvanized steel tubular pipes of equivalent section conforming Indian Standards having wall thickness 2mm, structural member should be joined with fasteners properly.
	Columns	76mm OD, 2 mm thick
	Trusses	Bottom cord 60 mm OD, 2 mm thick
	Trusses	Top cord 48 mm OD, 2 mm thick
	Purlin	48 mm OD, 2 mm thick
	Arches	48mm OD, 2mm thick
	Truss member& others	33 mm, 2 mm thick
	Hockey	60 mm OD, 2 mm thick
	Foundations (Civil material as per HSR)	Telescopic type. The column size to be 45 cm x 45 cm x 90 cm depth of CC 1:2:4 ratios properly compacted over 10 cm layer of 1:8:16.Two holdfast to be used in perpendicular direction at 20 cm apart in concrete starting from 20 cm from base.
	Fasteners	All nuts & bolts must be of high tensile strength and galvanized.
11.	Entrance room & Door	One entrance room of size 3m X 3m X 3m (L X W X H) need to be provided and covered with 200 micron UV stabilized transparent plastic film. Two hinge doors of size 2 m width & 2.5 m height or sliding door, double leaf made in plastic/FRP sheets mounted in suitable strong frame.
12.	Cladding material	UV stabilized 200 micron transparent plastic films. Conforming Indian Standards (IS 15827: 2019), multilayered, anti-drip, anti- fog, anti-sulphur (optional), diffused/clear and having minimum 85% level of light transmittance.
13.	Fixing of cladding Materials	All ends/joints of plastic film need to be fixed with two way GI profiles with suitable locking arrangement along with curtain top. Wooden batons or PVC grippers need not used. Self screw distance 30-40 cm.

14.	Spring Insert	Zigzag high carbon steel with spring action wire of minimum 2.3 mm diameter must be inserted to fix sheet into Aluminum Profile. 3 inch plastic sheet strip in between profile and spring insert shall be incorporated.
15.	Curtains and insect screen	Roll up UV stabilized 200 micron transparent plastic film as curtains need be provided up to 3.0 m height on all sides with manual roll up system. 40 mesh nylon Insect proof nets (UV stabilized) of equivalent size need to be fixed Inside the curtains. Anti –flapping strips is suggested to ensure smooth functioning of the curtain.
16.	Shade net	UV stabilized 50% Aluminium shading net with manually operated mechanism for expanding and retracting. Size of net should be equal to the floor area of greenhouse. IS 16513:2016
17.	Shade net operations	Non- motorized for all sizes with manual operation system.
18.	Drip Irrigation System with fogging & misting facility	Drip irrigation system under greenhouse need to be selected on the basis of crop spacing design on spacing 30 cm dripper to dripper (two rows per bed) 30 cm x 40cm along with fogging and misting facilities. The spacing considered for calculation. The suggested bill of materials are Sand Filter 10 m^3/hr, Hydrocyclone filter 25m3/hr, Screen Filter/Disc Filter 10 m^3/hr, Control Valve 63mm, Control Valve 50mm, By-pass Assembly 1.5", Air Release Valve, 1", Non Return Valve 1.5", Throttle Valve 1.5", Flush Valve 50mm, Venturi 1.5" Assembly with manifold, PVC pipe 63 mm/4 kg $cm^{2,}$ PVC pipe 50 mm/4 kg cm2, PVC pipe 63 mm/6 kg cm^2, PVC pipe 50mm/6kg/cm^2, PE plane lateral 16 mm, emitting pipe lateral 16mm - @ 0.30 m to 0.40m spacing, hanging type micro sprinkler nozzle (four-way take off assembly) for very fine water particles (foggers & mister) to be fixed in PE pipe of diameter 16mm and fittings & accessories @ 5%. Note: The above list of material is indicative list for 500 sqm structure area. The material may increase/decrease based on the size of structure.
19.	Bottom apron	UV stabilized woven fabric 160 GSM/200 micron poly film and a height of 1 m above ground and 50 cm buried below ground (Total width 1.5 m). Bottom apron to be fixed with insect net through profile fixing.
20.	Apron runner pipe	42mm OD, 2mm thick.
21.	Trellising System	i) Base wire 8 mm with anchor foundation or GI Pipe 60 mm OD, 2 mm thick, two nos. first and last row of the structure.
		ii) Trellising wire 3 mm steel or 2 mm gear wire, spaced apart at 75 cm in entire crop area in the structure.
		iii) Supporting wire 4 mm steel or 3 mm gear wire, connecting to each column from east to west of structure.
22.	Rain water harvesting system	PVC pipe- 110 mm, 2.5 kg and fitting as per requirement.

4.2 Indicative Technical Specifications of Naturally Ventilated Polyhouse (NVPH) (Rectangular pipe & channel)

S.N.	Items	Description/Specification
1.	Structure	Naturally Ventilated Greenhouse (Rectangular pipe & channel)
2.	Size	500 m^2 to 4000 m^2 (Area as per requirement)
3.	Bay size	9.6 x 4m with 3-5 m hockey on 4 sides
4.	Ridge height	6.5m to 7m
5.	Ridge Vent/Top Vent	1-1.2m cm opening fixed with 40 mesh insect screen
6.	Gutter height	4 – 4.5m from floor area
7.	Gutter slope	2% slope need be provided in civil foundation work/ structure. Maximum gutter length should be 40 m. In case the length is more than 40 m, then double sided slope should be given.
8.	Gutter Material	1.80 mm thick GI with 220 GSM Galvanization, Size of gutter 40 cm width (end to end) with 20 cm overlapping at joints.
9.	Structural design	The structural design need to be sound enough to withstand wind speed minimum 120 km/hr minimum load of 25 kg/m^2. There should be provision for opening one portion at either side for entry of small tractor/power tiller for intercultural practices.
10.	Structure	Complete structure made of galvanized steel tubular pipes of equivalent section conforming Indian Standards having wall thickness 1.6/2 mm, structural member should be joined with fasteners properly.
	Columns	90 x 50 x 1.6 mm rectangular section GI pipe
	Base Horizontal Beam	60 mm OD, 2 mm thick
	Trusses	Top and bottom cord 60 x40 x 1.6 mm rectangular section GI pipe
	Purlin	60 x40 x 1.6mm rectangular section GI pipe
	Arches	48mm OD, 2mm thick
	Truss member & others	33mm OD and 25mm OD GI pipe, 2 mm thick
	Hockey	80 x40 x 1.6 mm rectangular section GI pipe
	Foundations (Civil material as per HSR)	Telescopic type. The column size to be 45 cm x 45 cm x 90 cm depth of CC 1:2:4 ratios properly compacted over 10 cm layer of 1:8:16. Two holdfast to be used in perpendicular direction at 20 cm apart in concrete starting from 20 cm from base.
	Fasteners	All nuts & bolts must be of high tensile strength and galvanized.
11.	Entrance room & Door	One entrance room of size 4m X 3m X 3m (L X W X H) need to be provided and covered with 200 micron UV stabilized transparent plastic film. Two hinge doors/sliding doors of size 1 m width & 2 m height double leaf made in plastic/FRP sheets mounted in suitable strong frame.
12.	Cladding material	UV stabilized 200 micron transparent plastic films. Conforming Indian Standards (IS 15827: 2019), multilayered, anti-drip, anti- fog, anti-sulphur (optional), diffused/clear and having minimum 85% level of light transmittance.
13.	Fixing of cladding Materials	All ends/joints of plastic film need to be fixed with two way GI profiles with suitable locking arrangement along with curtain top. Wooden batons or PVC grippers need not used. Self screw distance 30-40 cm.
14.	Spring Insert	Zigzag high carbon steel with spring action wire of minimum 2.3 mm diameter must be inserted to fix sheet into Profile. 3 inch plastic sheet strip in between profile and spring insert.
15.	Curtains and insect screen	Roll up UV stabilized 200 micron transparent plastic film as curtains need be provided up to 3.0 m height on all sides with manual roll up system. 40 mesh Insect proof nets (UV stabilized) of equivalent size need to be fixed Inside the curtains. Anti –flapping strips is suggested to ensure smooth functioning of the curtain.

16.	Shade net	UV stabilized 50% Aluminum shade net with manually operated mechanism for expanding and retracting. Size of net should be equal to the cropped area of greenhouse. IS 16513:2016
17.	Shade net operations	Non- motorized for all sizes with manual operation system.
18.	Drip Irrigation System with fogging/misting facility	Drip irrigation system under greenhouse need to be selected on the basis of crop spacing design on spacing 30 cm dripper to dripper (two rows per bed) 30 cm x 40cm along with fogging and misting facilities. The spacing considered for calculation. The suggested bill of materials are Sand Filter 10 m^3/hr, Hydro cyclone filter 25m3/hr, Screen Filter/Disc Filter 10 m^3/hr, Control Valve 63mm, Control Valve 50mm, By-pass Assembly 1.5", Air Release Valve, 1", Non Return Valve 1.5", Throttle Valve 1.5", Flush Valve 50mm, Venturi 1.5" Assembly with manifold, PVC pipe 63 mm/4 kg $cm^{2,}$ PVC pipe 50 mm/4 kg cm2, PVC pipe 63 mm/6 kg cm^2, PVC pipe 50mm/6kg/cm^2, PE plane lateral 16 mm, emitting pipe lateral 16mm - @ 0.30 m to 0.40m spacing, hanging type micro sprinkler nozzle (four-way take off assembly) for very fine water particles (foggers & mister) to be fixed in PE pipe of diameter 16mm and fittings & accessories @ 5%. Note: The above list of material is indicative list for 500 sqm structure area. The material may increase/decrease based on the size of structure.
19.	Bottom apron	UV stabilized woven fabric 160 GSM/200 micron poly film and a height of 1 m above ground and 50 cm buried below ground (Total width 1.5 m). Bottom apron to be fixed with insect net through profile fixing.
20.	Apron runner pipe	42 mm, 2mm thick
21.	Trellising System	i) Base wire 8 mm with anchor foundation or GI Pipe 60 mm OD, 2 mm thick, two nos. first and last row of the structure.
		ii) Trellising wire 3 mm steel or 2 mm gear wire, spaced apart at 75 cm in entire crop area in the structure.
		iii) Supporting wire 4 mm steel or 3 mm gear wire, connecting to each column from east to west of structure.
22.	Rain water harvesting system	PVC pipe- 110 mm, 2.5 kg and fitting as per requirement.

4.3 Indicative Technical Specifications of Hi-tech Greenhouse (Fan & Pad cooling System)

Sn.	Items	Description/ Specification
1.	Product	Greenhouse with Fan & Pad cooling
2.	Size	500 m^2 to 4000 m^2
3.	Bay size	8m x 4m, 5m x 5m with 4 side hockey 2 mtr
4.	Ridge height	6 m
5.	Gutter height	4 – 4.5 m from floor area
6.	Gutter slope	2% slope need be provided in civil foundation work/ structure. Maximum gutter length should be 40 m. In case the length is more than 40 m, then double sided slope should be given.
7.	Gutter Material	1.8 mm thick GI with 220 GSM Galvanization. Size of gutter 40 cm width (end to end) with 20 cm overlapping at joints.
8.	Structural design	The structural design need to be sound enough to withstand wind speed minimum 120 km/hr and minimum load of 25 kg/m^2. There should be provision for opening one portion at either side for entry of small tractor/power tiller for intercultural practices. The firm needs highlight design features and list of greenhouse clients.
9.	Structure	Complete structure made of galvanized steel tubular pipes of equivalent section conforming Indian Standards having wall thickness 2mm, structural member should be joined with fasteners properly.
	Columns	76mm OD, 2 mm thick
	Trusses	Bottom cord 60 mm OD, 2 mm thick
	Trusses	48 mm OD, 2 mm thick
	Purlin	48 mm OD, 2 mm thick
	Truss member& others	33/25 mm, 2 mm thick
	Hockey	60 mm OD, 2 mm thick
	Foundations (Civil material as per HSR)	Telescopic type. The column size to be 45 cm x 45 cm x 90 cm depth of CC 1:2:4 ratio properly compacted over 10 cm layer of 1:8:16. Two holdfast to be used in perpendicular direction at 20 cm apart in concrete starting from 20 cm from base.
	Fasteners	All nuts & bolts must be of high tensile strength and galvanized.
10.	Entrance room & Door	One entrance room of size 3m X 3m X 3m (L X W X H) need to be provided and covered with 200 micron UV stabilized transparent plastic film. Two hinge doors of size 2 m width & 2.5 m height or sliding door, double leaf made in plastic/FRP sheets mounted in suitable strong frame.
11.	Cladding material	UV stabilized 200 micron transparent plastic films. Conforming Indian Standards (IS 15827: 2019), multilayered, anti-drip, anti- fog, anti-sulphur (optional), diffused/clear and having minimum 85% level of light transmittance.
12.	Fixing of cladding materials	All ends/joints of plastic film need to be fixed with two way GI profiles with suitable locking arrangement along with curtain top. Wooden batons or PVC grippers need not used. Self-screw difference 30-40 cm
13.	Spring Insert	Zigzag high carbon steel with spring action wire of minimum 2.3 mm diameter must be inserted to fix sheet into Aluminum Profile. 3 inch plastic sheet strip in between profile & spring insert shall be incorporated.
14.	Co-axial fan	Co-axial fan (ISI mark) of minimum 1200 mm diameter containing 6 numbers of GI sheet blades, frame is of GI sheet materials followed by aluminum louver. 12 Fans per acre.
15.	Cellulose pad for cooling	Cellulose pad of thickness 4" – 6" thick, height: 5', width as desired equipped with anodized aluminum frame. Cooling pad complete with all necessary framing material (Aluminum) as required for distribution

		and return, gutter, down spout cap and drip pan, plumbing kit, pump 220 Volt single phase, suspension hardware, metal flashing required to seal pad for vent opening over flow 20 mm PVC & 40mm standard sink drain.
16.	Circular pump with accessories for cooling pad	Circular pump with required capacity & accessories to be provided for wetting & circulating the pad area.
17.	Digital controller with sensory devices	The necessary digital controller with sensory device & accessories of standard quality (at least two units for 500 sqm area) should be provided to operate the fan & pad system to control temperature & humidity inside the Greenhouse.
18.	Electric wiring inside greenhouse	Use copper wire to withstand desired load of required electrical gadgets/appliances with ISI mark.
19.	Shade net	UV stabilized 50% Aluminium shading net with manually operated mechanism for expanding and retracting. Size of net should be equal to the floor area of greenhouse. IS 16513:2016
20.	Drip Irrigation System with fogging & misting facility	Drip irrigation system under greenhouse need to be selected on the basis of crop spacing design on spacing 30 cm dripper to dripper (two rows per bed) 30 cm x 40cm along with fogging and misting facilities. The spacing considered for calculation. The suggested bill of materials are Sand Filter 10 m^3/hr, Hydrocyclone filter 25m3/hr, Screen Filter/Disc Filter 10 m^3/hr, Control Valve 63mm, Control Valve 50mm, By-pass Assembly 1.5", Air Release Valve, 1", Non Return Valve 1.5", Throttle Valve 1.5", Flush Valve 50mm, Venturi 1.5" Assembly with manifold, PVC pipe 63 mm/4 kg $cm^{2,}$ PVC pipe 50 mm/4 kg cm2, PVC pipe 63 mm/6 kg cm^2, PVC pipe 50mm/6kg/cm^2, PE plane lateral 16 mm, emitting pipe lateral 16mm - @ 0.30 m to 0.40m spacing, hanging type micro sprinkler nozzle (four-way take off assembly) for very fine water particles (foggers & mister) to be fixed in PE pipe of diameter 16mm and fittings & accessories @ 5%. Note: The above list of material is indicative list for 500 sqm structure area. The material may increase/decrease based on the size of structure.
21.	Civil work (fan and pad)	Wall on fan side will be 35 mm thick and 80 cm high and wall on pad side will be 23 cm thick and 10 cm high from ground level in cm 1:6 with required foundation. All the walls will be plastered in cm 1:4 on top and sides.
22.	Rain water harvesting system	PVC pipe- 110 mm, 2.5 kg and fitting as per requirement.

4.4 Indicative Technical Specifications of Walk in Tunnels (2.5 mtr Height)

Sn.	Component/ Intervention	Specifications
A	**Particulars**	
	Structure	WIT
1.	Area Proposed approximate (sqm)	50-400
2.	Length of Tunnel (mtr)	Upto 50
3.	Width of Tunnel (mtr)	5-8
4.	Center height (mtr)	2.5
5.	Distance between 2 arches (mtr)	3
B	**Name of the parts**	
6.	Foundation stub OD/mm	33 to 48/2
7.	Main column OD/mm	42 to 60 /2
8.	Bottom Chord OD/mm	33 to 42/2
9.	Arches with W bracings OD/mm	33 to 48/2
10.	Purlins OD/mm	22 to 42/2
11.	Clamps and nut bolts	As per requirement
12.	Cross bracings	4 nos. & 22 to 42/2
13.	W-Bracing OD/mm	22 to 42/2
C	**Profiles and springs**	
14.	Profile	GI Profile
15.	Zigzag spring insert	High carbon steel wire repeated action, 2.3 mm dia, GI
D	**Cladding Material**	
16.	Option 1: All insect net	40 mesh IS 16513:2016
17.	Option 2: All shade net	35-90% shade net IS 16008:2016
18.	Option 3: All Polythene sheet	Confirming to IS 15827: 2019 standard. Fixed Properties – 200 microns thick, UV stabilized, Thermic, diffused, Anti dust Anti drip. Optional Property- IR Reflective Cooling, Anti Sulphur for the crops where Sulphur consumption is high For ex – rose cultivation (As per farmer choice)
	Option 4: Poly/ shade net top and insect/ shade net on sides	As per specifications 15, 16, 17
E	**Specific Requirements**	
19.	Trellising System	i) Base wire 8 mm with anchor foundation or GI, 2 mm thick, two nos. first and last row of the structure. ii) Trellising wire 3 mm steel or 2 mm gear wire, spaced apart at 75 cm in entire crop area in the structure. iii) Supporting wire 4 mm steel or 3 mm gear wire, connecting to each column from east to west of structure. OR any other suitable system having good strength.
20.	Foundations (cm x cm x cm) (Civil material as per HSR)	The column size to be 30 cm x 30 cm x 30 cm depth
F	**MI Component**	
21.	**Drip System**	HDPE/ low-cost tape MI system

4.5 **Indicative Technical Specifications of Anti-Insect Net House (AINH)/ Shade Net House (SNH)**

S.N.	Item	Specification
01	Structure	Flat/Dome shape, Shade/Insect Net House
	Size	According to requirement
	Shape	As per design
	Withstand to wind velocity	Structure may be designed to withstand wind speed maximum 120 km/hr in high wind velocity zone.
	Foundation	Size 48 mm, 3.0 mm thickness GI Pipes compatible with columns, length 1.2 m
	Main Column	Size 60 OD, Thickness 2 mm,
	Purlins	Purlin GI pipes – size 48mm of 6 m length & 42 mm OD of 4 m length thickness 2 mm, Purlin members/V support – 33 mm OD/2mm thickness,
	Arc	48 mm OD, Thickness 2mm in case of Dome Shape structure
	Hockey	Size 60 OD, Thickness 2 mm,
	Four Way Pipe Couplers Five Way Pipe Couplers Or L-angle F-angle	Size 42/48 OD, Thickness 2 mm, length-0.15 m Size 42/48 OD, Thickness 2 mm, length-0.15 m Or 50X 50 X 5 mm, length = minimum 6-inch x 6 inch. 50 X 50 X 5 mm, length= minimum 8-inch x 6 inch x 4 inch.
	Nut Bolts	Size 3/8”
	Grid Size	4x4, 4x6 (m) with 2 mtr hockey on four side
	Gable length	4.0 m
	Centre Height	Flat Structure – 4m Hut/dome type structure – centre height – 4.5 to 5.5 m, side height – 4 m with 48mm truss, 33mm truss member and 42mm purlin
2.	Profile	C type GI profile to fix shade/insect net to the structure by means of self-tapping screws. Weight of GI profile is 275-300 gm/meter. Self-drilling screw be fixed on profile every 40 cm along the full length of the profile
3.	Spring Insert	Zigzag high carbon steel with spring action wire of minimum 2.3 mm diameter must be inserted to fix sheet into profile.
4	Cladding material	Insect net 40 mesh on all four sides and on top or shade net (35-90%) of tape/mono net, etc.
5	Door	Polycarbonate/polythene sheet door with 1 m widths and 2m height and another door of 1m x 2m Box section frame is embedded inside for the strength.
6	Entry Room	Entry room of size 4mx 3m attached to net house
7	Civil work/foundation (Civil material as per HSR)	Cement concrete 1:2:4 block of size 45 cm x 45 x 90 cm for embedding vertical poll/pipe of shade net, subject to revision as per requirement of site.
8	Overall slop	1 to 1.5%
9	APRON	Use of APRON upto 1 mtr height stitched with insect net / shade net
10	Drip irrigation and fogging system	Drip irrigation system under greenhouse need to be selected on the basis of crop spacing design on spacing 30 cm dripper to dripper (two rows per bed) 30 cm x 40cm along with fogging facilities. The spacing considered for calculation. The suggested bill of materials are Sand Filter 10 m^3/hr, Hydro cyclone filter 25m3/hr, Screen Filter/Disc Filter 10 m^3/hr, Control Valve 63mm, Control Valve 50mm, By-pass Assembly 1.5”, Air Release Valve, 1”, Non Return Valve 1.5”, Throttle Valve 1.5”, Flush Valve 50mm, Venturi 1.5” Assembly with manifold, PVC pipe 63 mm/4 kg $cm^{2,}$ PVC pipe 50 mm/4 kg cm2, PVC pipe 63 mm/6 kg cm^2, PVC pipe 50mm/6kg/cm^2, PE plane lateral 16 mm, emitting pipe lateral 16mm - @ 0.30 m to 0.40m spacing, hanging type micro sprinkler nozzle (four-way take off assembly) for very fine water particles (foggers) to be fixed in PE pipe of diameter 16mm and fittings & accessories @ 5%. Note: The above list of material is indicative list for 500 sqm structure area. The material may increase/decrease based on the size of structure.
11	Trellising System	i) Base wire 8 mm with anchor foundation or GI Pipe 60 mm OD, 2 mm thick, two nos. first and last row of the structure.
		ii) Trellising wire 3 mm steel or 2 mm gear wire, spaced apart at 75 cm in entire crop area in the structure.
		iii) Supporting wire 4 mm steel or 3 mm gear wire, connecting to each column from east to west of structure.
12	Shade Net	Shade Net minimum 35 to 65% IS 16008:2016 and (Aluminium net optional)

4.6 Technical Specifications of Poly-Net House (PNH)

S.N.	Item	Specification
01	Structure	Poly Net House (PNH)
	Size	According to requirement
	Shape	As per design
	Withstand to wind velocity	Structure may be design to withstand wind velocity upto 104 Km/hr., 120 km/ hour per hrs. in high wind velocity zone.
	Foundation	60mm OD, 2mm thickness GI Pipes compatible with columns, length 1.2m
	Main Column	Size 76 OD, Thickness 2 mm,
	Purlins	Purlin GI pipes – size 48/43 OD/thickness 2 mm, length – 4 m. Purlin members – 33/32mm OD/2mm thickness,
	Arc	48 mm OD, Thickness 2mm in case of Dome Shape structure
	Corner/Hockey	Size 60 OD, Thickness 2 mm, Wt. per length 0.15 kg, length-0.15 m
	L-angle F-angle	50X 50 X 5 mm, length = minimum 6-inch x 6 inch. 50 X 50 X 5 mm, length= minimum 8-inch x 6 inch x 4 inch.
	Gutter height	4 – 4.5 m from floor area
	Gutter slope	2% slope need be provided in civil foundation work/ structure. Maximum gutter length should be 40 m. In case the length is more than 40 m, then double sided slope should be given.
	Gutter Material	1.8 mm thick GI with 220 GSM Galvanization
	Nut Bolts	Size 3/8”
	Grid Size	4x4, 8x4, 4x6 (m) with 2 mtr hockey on 4 side
	Gable length	4.0 m
	Centre Height	Hut/dome type structure – centre height – 5-5.5 m, side height – 4m with 48mm truss, 33mm truss member and 48mm purlin
2.	Profile	C type GI profile to fix shade net to the structure by means of self-tapping screws. Weight of GI profile is 280-300 gm/meter. Self-Drilling Screw be fixed on profile every 30-40 cm along the full length of the profile
3.	Spring Insert	Zigzag high carbon steel with spring action wire of minimum 2.3 mm diameter must be inserted to fix sheet into profile. 3 inch plastic sheet strip in between profile and spring insert may be added
4	Cladding material	Poly sheet on top and insect net 40 mesh all sides
5	Door	Polycarbonate/polythene sheet door with 1 m widths and 2m height and another door of 1m x 2m Box section frame is embedded inside for the strength.
6	Entry Room	Entry room of size 4mx 3m attached to net house
7	Civil work/foundation (Civil material as per HSR)	Cement concrete 1:2:4 block of size 45 cm x 45 cm, 90 cm for embedding vertical poll/pipe of shade net, subject to revision as per requirement of site.
8	Overall slop	1 to 1.5%
9	APRON	Use of APRON upto 1 mtr height stitched with insect net / shade net or Bottom apron fixed with insect net through profile fixing.
10	Drip irrigation and fogging system	Drip irrigation system under greenhouse need to be selected on the basis of crop spacing design on spacing 30 cm dripper to dripper (two rows per bed) 30 cm x 40cm along with fogging facilities. The spacing considered for calculation. The suggested bill of materials are Sand Filter 10 m^3/hr, Hydro cyclone filter 25m3/hr, Screen Filter/Disc Filter 10 m^3/hr, Control Valve 63mm, Control Valve 50mm, By-pass Assembly 1.5”, Air Release Valve, 1”, Non Return Valve 1.5”, Throttle Valve 1.5”, Flush Valve 50mm, Venturi 1.5” Assembly with manifold, PVC pipe 63 mm/4 kg $cm^{2,}$ PVC pipe 50 mm/4 kg cm2, PVC pipe 63 mm/6 kg cm^2, PVC pipe 50mm/6kg/cm^2, PE plane lateral 16 mm, emitting pipe lateral 16mm - @ 0.30 m to 0.40m spacing, hanging type micro sprinkler nozzle (four-way take off assembly) for very fine water particles (foggers) to be fixed in PE pipe of diameter 16mm and fittings & accessories @ 5%. Note: The above list of material is indicative list for 500 sqm structure area. The material may increase/decrease based on the size of structure.
11	Trellising System	i) Base wire 8 mm with anchor foundation or GI Pipe 60 mm OD, 2 mm thick, two nos. first and last row of the structure.
		ii) Trellising wire 3 mm steel or 2 mm gear wire, spaced apart at 75 cm in entire crop area in the structure.

		iii) Supporting wire 4 mm steel or 3 mm gear wire, connecting to each column from east to west of structure.
12	Shade Net	Aluminium Shade Net minimum 35 to 65%. IS16008:2016
13	Poly sheet	UV stabilized 200-micron transparent plastic films. Conforming Indian Standards (IS 15827: 2019), multilayered, anti-drip, anti- fog, anti-Sulphur (optional), diffused/clear and having minimum 85% level of light transmittance.
14	Rainwater harvesting system	PVC pipe- 110 mm, 2.5 kg and fitting as per requirement.

4.7 Indicative Technical Specifications of Insect Net House (INH)- Cable Purlin

S.N	Item	Indicative Specifications
1.	Structure	Tubular Structures with cable purlins Net House
2.	Size	According to requirement
3.	Shape	As per design
4.	Withstand to wind velocity	Structure may be design to withstand wind velocity upto 104 Km/hr. 120 km/hour per hrs. in high wind velocity zone.
5.	Main Column	Exterior corner 76 OD, **2.65** mm thick, height of pole 4m Exterior side/peripheral column 76 OD, 2.65 mm thick, height of pole 4m Interior column 60 OD, 2mm thick, height of pole 5 m i.e. (4 mtr. above ground level+1 mtr. below ground level)
6.	Balcony	2.50 mtr. Supported with 6mm thick anchor cable
7.	Trellis System	i) Base wire 8 mm with anchor foundation or GI Pipe 60 mm OD, 2 mm thick, two nos. first and last row of the structure.
		ii) Trellising wire 3 mm steel or 2 mm gear wire, spaced apart at 75 cm in entire crop area in the structure.
		iii) Supporting wire 4 mm steel or 3 mm gear wire, connecting to each column from east to west of structure.
8.	Clamps	Clamps-triple wire connector, 6mm thick wire cable clamp
9.	Nut Bolts	Tighten bolt 3/8", 120 mm; Tighten bolt 3/8", 90 mm; Tighten bolt 3/8", 100 mm, Eye bolt 3/8", 120mm
10.	Spacing	5 x 8 mtr., spacing 4 x 5 mtr. at both outer sides
11.	Centre Height	4.0 mtr. in case of flat structure.
12.	Accessories	Cable hold small plate, cable hold large plate, 3" pipe plastic cup, 2"pipe plastic cup, 14mm iron pins, screen red rolls, screen pipe housing, net needles, net oval connectors, net hook connectors, simes.
13.	Insect Proof Net & Shade Net	40 mesh insect net shade net on roof, 40 mesh anti-insect net at sides
14.	Entrance & anti room	Entrance – G.I. frame with poly carbonate sheet 2m x 2m size hinged type with locking arrangement. (Anti room of size 2m x 4m x 2m with double door and covering of insect net/shade net, with provision of entry and exist for tractor), 50 mm PCC flooring over 75 mm thick sub base.
15.	Foundation (Civil material as per HSR)	Outer anchor: 1.8 mtr length anchor with 1 mtr depth PCC of CM ratio (1:2:4) of 45 cm diameter. Outer pole: 50 cm length, 25 mm dia. Bent iron pin/rod in 0.5 mtr depth PCC of CM ratio (1:2:4) of 45 cm diameter. Intermediate pole: in a pit of 45 cm dia, the pole is inserted 1 mtr. Deep, rested on plates for foundation and is placed in 25 cm thick PCC of CM ratio 1:2:4
16.	Iron accessories for foundation	Anchor, bent iron pin/rod, inner column base angles/foundation plates for intermediate poles
17.	Drip irrigation and Fogging system	Drip irrigation system under greenhouse need to be selected on the basis of crop spacing design on spacing 30 cm dripper to dripper (two rows per bed) 30 cm x 40cm along with fogging facilities. The spacing considered for calculation. The suggested bill of materials are Sand Filter 10 m^3/hr, Hydro cyclone filter 25m3/hr, Screen Filter/Disc Filter 10 m^3/hr, Control Valve 63mm, Control Valve 50mm, By-pass Assembly 1.5", Air Release Valve, 1", Non Return Valve 1.5", Throttle Valve 1.5", Flush Valve 50mm, Venturi 1.5" Assembly with manifold, PVC pipe 63 mm/4 kg cm^2, PVC pipe 50 mm/4 kg cm2, PVC pipe 63 mm/6 kg cm^2, PVC pipe 50mm/6kg/cm^2, PE plane lateral 16 mm, emitting pipe lateral 16mm - @ 0.30 m to 0.40m spacing, hanging type micro sprinkler nozzle (four-way take off assembly) for very fine water particles (foggers) to be fixed in PE pipe of diameter 16mm and fittings & accessories @ 5%. Note: The above list of material is indicative list for 500 sqm structure area. The material may increase/decrease based on the size of structure.
18.	Shade Net	Shade Net minimum 35 to 65% IS 16008:2016

4.8 Indicative Technical Specifications of Aeroponics units

Sr. No.	Product Details
1	**Structure**: GI pipes as per ISI 239 Class B: hot dip galvanized GI pipes with IS4736-1968/ISO65-1973 zinc coated as approved for maximum Indian wind load conditions. Structural trusses Wind load 120Km/hr BL2-P rigid wind resistant frame Center Height 5.5m, Side Height 4.0m, Span width 8m
2	**GI PIPE**: IS 1239 B class construction uses thickness 2mm + minus 0.5mm GI coat ISI4736-1968/ISO65-1973
	Columns: 80x50mm 70mm x70mm in 2mm thic hot dip galvanized pipe
	Purlin: 40mm x40mm 2mm thick, arcs 5mm x 40mm
	Gutter 2mm thickness, length 4m per piece
3	**Entry Room** 4 X 3 m provided with air curtains. Made of 8mm double layer polycarbonate with two doors each having hydrolic door closers.
4	**Door** 2x1 m of anodized aluminium section with poly carbonate sheet 8 mm thick as cladding material with proper locking system (cylinder lock), door stoppers, door brush at the bottom and hydraulic door closer 2 nos.
5	Glazing: 8mm thick poly carbonate sheet UV Stabilized double layered (6mm) transparent polycarbonate sheet (Sabic lexan make) with at least 73-75%) transmission and 10 years warranty approx. Wt.1770g perforated anti dust aluminium tape 12 feet, screws nonmagnetic, sound insulation dB 20, impact performance -40 to + 120 degree C, Light transmission 73 – 75%. Sheet fixing on roof and all sides of green house. Sides and roof covering with anodized aluminium stripping, geeignet gasket and silicon (translucent)treatment for proper holding. insulation and thermal safety K value or U value range 2.92 (float glass K – value 5.8). The sheet should have excellent weather resistance having 10 years warranty (protection against the damage effects of UV radiation in sun light. It should have safe fire performance i.e. self-extinguishing and difficult to ignite.
6	550% over heading shade arrangement with green colour material UV resistant material provided with manual rolling system (make imported/Netlon/B&B/Malmo)
7	Air curtains: to be provided over both the entry door to cover full width heavy duty, cabinets of air curtain made of cold rolled mild steel sheets high quality aluminium sheets ½ H.P. motor double blower system, power coated finish at pre entry point with auto main ON/OFF operation at the time of door opening and closing (two Nos.)
8	**Evaporative cooling system**: 1.8 m tall evaporative cellulose complete set with framing material of aluminium required, down spout, drip pan, plumbing kit, pump, drilled PVC piping, all hardware. Pad thickness 150mm. Aluminium profiles tray sides cooling media celdak 7090/50Filration 40 mesh nylon Celdek (Munter) pad, (Pad size 104’ x 6’ x 4’ thick for proper CFM of air movement per sqm. ft of area. proper ambient conditions 25-45ºC estimated cooling load 101, 520 BTU/Hrs, total water flow 7.56LPM/sq.ft of the top surface, eco-friendly, high saturation efficiency, self-cleaning feature, no setting or shrinkage of product, low pressure drop characteristics. Water bleeding mechanism to lessen water pollution. On line water filter. On back side of celdak pad and heavy duty slow speed axial flow fans 36” with aluminium louvered covering be provided. List of materials: - 54” slow axial flow fan (Munter make) 8 nos. aluminium louvers –GI/AI pad fittings – complete 1 HP Mono block pump – 1 no. Crompton make, 1000 litre doubled layered water tank sintex meivllake, GI trays water distribution system 1 no. 32/25 mm PVC pipes with fitting. Line filter 1 no. The external surface area of the fan and pad is covered with filter screen of 40 x 40 mesh stainless steel as per DBT bio safety guidelines).

9	**Light**: High luminous lox PAR lamp LED Philips quantity as per requirement of chamber, CRL Philips fitting in buffer room for visibility only in night time.
10	**Electrification**: High quality ISI approved fittings with copper multi stand twisted fire resistant grade (ISI) wires (1.00 mm to 4.00mm as per requirement) stds. of safely with proper MCB with appropriate electrical point of 5/15 ampscombined (Harvells/Anchor make.
11	**Civil Works**: Grouting of side poles in CC 1:2:4 (40x40x90cm) below ground level. Internal walls, ceiling & floors resistant to liquids & chemicals Curtain wall 23cm wide 60 cm below & 60 cm above ground level. Digging/excavation & provide 4" thick cement concrete in foundation in ratio of 1:2:4 & brick work to check lateral movement of interlocking cemented tiles or paver block of 2.5-3" thickness. Plinth Protection: All along the structure 50cm wide with cement concrete at 1:2:4 ratio 3mm thickness. The work will include curing on the top surface and proper compaction of the under surface with drain all sides of the structure. Accessories: soil washing facility with stainless wash basin (1No.) Drainage points, plumbing polymer pipes water corrosion free coated GI pipe/polymer pipes of ¾"Or ½ "etc.
12	**Automatic control system microprocessor photosynthesis monitor panel** with mains off/on switch (L &T make). light indicator for main light, heating, cooling & humidity. **Micro climatic temperature controller:** **Specifications:** Real time microprocessor based PID controller, 4 digit LED display for displaying measured 14mm, 8mm)/displaying settings, soft touch operations, platinum sensor probe Pt-100, set point lock within the setting panel to protect setting changes, level lock to ensure that the parameters can be readout but cannot be changed, sensor failure indication, display resolution 0.1 degree accuracy plus minus 0.1 degree C, Automatic hysteresis control. Wide selectable temperature ranges from 0 to 1000 C, 4.4 KVA load can be directly connected to the powered output Input – 200 – 240 VAC, 50Hz.Single phase, Ambient 5-50 C, RH 90%
13	**Relative humidity control system:** Micro climatic humidity controller micro-processor based, on/off humidifying/dehum. Hystersis /differential 1%-9% delay time 0-24sec, Direct/Reverse selectable, lock functions to prevent miss operation, Feather touch operations, Fast response sensor line resistance <10Ω Display accuracy – indicating value ± 0.2%± 1 digit
14	**Timer**: Plitz/cyclic timer for humidity specific for fogging, misting system, controlled by time to reduce water logging condition in the transgenic Green House each specifications 0-999 min/ seconds On 0-999Min/sec OFF automatic **Specification System:** 0-99Min Sec OFF, auto cycling, accuracy quartz, power output can be directly drive misting unit load upto 4.4VA, input 200V to 240 VA.C, Phase single, 550Hz Amblent 4 ºC to 50ºC, RH upto 90%.
15	**Shading System**: a) External shading system: 50% shading net (agro shade net) with polling arrangement connecting pipe etc. b) Internal shading System-: Reflective, thermal aluminium – screen silver with a motorized operated expanding & retracting mechanism inside the chamber.
16	**Side ventilation system:** Both sides provided with ventilation opening length wise through rack/pinion gear mechanism for cross ventilation (for the time of electric failure) with covered by proper mess protection by 40 mesh.

4.9 Indicative Technical Specifications of Hydroponics units

Sn.	Item details
1	Elevated system , Scope of supply Substrate media, Trough, Dripping accessories, Trough Supporting stand , Nursery bed., Exclusions:Instrumentation, Nutrients, Saplings
2	Foggers
3	Chilling unit will be required instead of Fan pad system which will facilitate to control thetemperature at minimum possible limit
4	Automated Drip irrigation and fertigation unit with 4 dosing Channels. Dosing capacity 500LPH . Auto EC and Ph correction. Fertigation dosing machine able to handle min, shift flow 5 m3/hr to 25m3/hr.
	Nutrient storage and Acid storage triple layer tanks 04 nos Sintex make 500 Liters capacity
	Main irrigation pump with VFD Make CRI or Kirloskar 5-25m3/hr 3Hp
	Solenoid valves Make BACCARA 24 V DC 1.5"
	EC and Ph monitor and controller ASTER make
	Blower Agitator EM-MF 210 MP 270 MV 220 440V 1HP
	3/4" Disc 130 micron filters for nutrient tanks
	Disc Filters capacity $20m^3/hr$
	Gravel Filters capacity $20m^3/hr$
	Electromagnetic flow meter 2.5" B.R. Instrumentation
5	Automation and sensor
	Smart controller with PLC control panel, SCADA and PC
	Surface or wall mounted RH + T 2 wire transmitter
6	CIVIL WORK: Grouting of side poles in CC 1:2:4 (40x40x90cm) below ground level. Internal walls, ceiling & floors resistant to liquids & chemicals Curtain wall 23cm wide 60 cm below & 60 cm above ground level. Digging/excavation & provide 4" thick cement concrete in foundation in ratio of 1:2:4 & brick work to check lateral movement of interlocking cemented tiles or paver block of 2.5-3" thickness. Plinth Protection: All along the structure 50cm wide with cement concrete at 1:2:4 ratio 3mm thickness. The work will include curing on the top surface and proper compaction of the under surface with drain all sides of the structure. Accessories: soil washing facility with stainless wash basin (1No.) Drainage points, plumbing polymer pipes water corrosion free coated GI pipe/polymer pipes of ¾"Or ½ "etc.
7	**GI PIPE**: IS 1239 B class construction uses thickness 2mm + minus 0.5mm GI coat ISI4736-1968/ISO65-1973
	Columns: 80x50mm 70mm x70mm in 2mm thic hot dip galvanized pipe
	Purlin: 40mm x40mm 2mm thick, arcs 5mm x 40mm
8	Poly Film: UV stabilized 200-micron transparent plastic films. Conforming Indian Standards (IS 15827: 2019), multilayered, anti-drip, anti- fog, anti-Sulphur (optional), diffused/clear and having minimum 85% level of light transmittance.
9	GI Gutter 2mm thickness, length 4m per piece
10	Aluminum Profiles: C type GI profile to fix shade net to the structure by means of self-tapping screws. Weight of GI profile is 280-300 gm/meter. Self-Drilling Screw be fixed

	on profile every 30-40 cm along the full length of the profile
11	Clamps & Accessories: Clamps-triple wire connector, 6mm thick wire cable clamp
12	Shade Net: Shade Net minimum 35 to 65% IS 16008:2016
13	Insect Net (on sides): 40 mesh insect net shade net on roof, 40 mesh anti-insect net at sides
14	Locking spring: Zigzag high carbon steel with spring action wire of minimum 2.3 mm diameter must be inserted to fix sheet into profile. 3 inch plastic sheet strip in between profile and spring insert may be added.
15	High Tensile Nuts & Bolts: All nuts & bolts must be of high tensile strength and galvanized.
16	Self-Drilling tapping Screws: As per requirement.
17	GI Wire
18	Plastic Rope: As per requirement.
19	Pulley assembly: As per requirement.
20	Curtain Rings; As per requirement.
21	UV stabilized FRP-Door assembly
22	Exhaust Fan: Co-axial fan (ISI mark) of minimum 1200 mm diameter containing 6 numbers of GI sheet blades, frame is of GI sheet materials followed by aluminum louver. Minimum 12 Fans per acre.
23	Cellulose Cooling pads: Cellulose pad of thickness 4" – 6" thick, height: 5', width as desired equipped with anodized aluminum frame. Cooling pad complete with all necessary framing material (Aluminum) as required for distribution and return, gutter, down spout cap and drip pan, plumbing kit, pump 220 Volt single phase, suspension hardware, metal flashing required to seal pad for vent opening over flow 20 mm PVC & 40mm standard sink drain.
24	Water Circulating System
25	Fogging System
26	Control Head for pad circulation
27	Control Head for Foggers
28	Climate Controller: The necessary digital controller with sensory device & accessories of standard quality (at least two units for 500 sqm area) should be provided to operate the fan & pad system to control temperature & humidity inside the Greenhouse. Micro climatic humidity controller micro-processor based, on/off humidifying/dehum. Hystersis /differential 1%-9% delay time 0-24sec, Direct/Reverse selectable, lock functions to prevent miss operation, Feather touch operations, Fast response sensor line resistance <10Ω Display accuracy – indicating value ± 0.2%± 1 digit
29	Panel Box
30	Civil Work Brick Wall below FAN & PADS: Wall on fan side will be 35 mm thick and 80 cm high and wall on pad side will be 23 cm thick and 10 cm high from ground level in cm 1:6 with required foundation. All the walls will be plastered in cm 1:4 on top and sides.

Note: The detailed technical specification/ quality of material shall be applicable as per aeroponics unit.

4.10 Indicative Technical Specifications of Triple layer net house/units

No.	Specification	Description
1	**Hi-Tech Flat Net Housewith Cable Purlins Structure**	• Total Area – As per requirement. • Rigid Structure with 8m X 4m Grid Sides and 2.5 m Hockey for all four Sides. • ISI marked GI pipe, min 2mm thick for structures withgalvanized with Zinc 275 gm/m².
2	**Height**	• 5 M above the Ground
3	**Foundation**	• For OD 90mm column 76mm foundation is used. • For OD 60mm column 48mm foundation is used. • The structure is reinforced by a diagonal wall (balcony) made of 6 mm GI wire ropes. The wire ropes are connected to the ground with help of Anchor rods which are concreted
4	**Entrance**	• The entrance is made of an entry room with 2 double sliding doors of Size 1.5 m Wide x 2 m High to be openedalternately. • The doors are made of Aluminum frame covered by tin onthe lower part and with polycarbonate on the upper part. • Each door slides on wheels on a rail. The upper part is connected to 2 plastic conductors which slide inside a hidden rail. The doors are connected to the structure by bolts and bracings.
		• The entry room's sizes are 3 m x 4 m x 2m and it is covered with IP Net. • The main purpose of the entry room is for sanitation and for avoiding entrance of insects and pests.
5	**Covering Material**	• The Net house is covered with 40 mesh Optinet at the top an all sides. • Optinets are UV stabilized & the type of nets is 40 Mesh, which resists even small insects to enter into the net house. So, the crop is protected. • Apron is stitched to the Optinet and it is buried in the trench around the structure. The top net and the side nets are connected each other by Net stitching sticks.

6	**Shed Net**	• Shade Net 50% Aluminum net is provided inside the greenhouse is operated with manual system. • The shade net is operated i.e., open and closed with pulley arrangement, where pulleys are provided at each column. 2mm GI wires arrangement provided before shade net installation and the shade net is supported by those wire.
7	**Air Circulation Fan**	• Air Circulation fan: Size 560*560*380 mm, Single Phase, CFM -3708, RPM – 935 r/m, Air Flow - 18-22 M, Stainless Steel, No. Of Blade – 7 • No of ACF: 12
8	**Trellising System**	• For Plants Support Trellising System
9	**Weed mat**	• Ground Cover (Black x White) / (White x White) 130 GSM (UV Stabilized) with fixing nails Roll Size: 4.2 m x 100m
10	**Rain Protection Kit**	• 8M X 4M Size • PicPlast Rain Protection Kit Israel
11	**Drip and Foggers.**	• Drip Irrigation System • Sand Filter and Disc Filter to check clogging of drippers/emitters. • Foggers for humidity control
12	**Automated Fertigation System**	• Fully Automated IOT base Fertigation System capable of handling multiple recipes along with Climate control with Scalable option. • The automated fertigation system is capable to serve up to four-acre structures.
13	**Grow Slabs, Pro Tray**	• Biogrow Duo Grow Slabs having Coco peat & Coco chips • Pro Tray: 1 mm Thickness, for Grow Slabs Supports • Pro Tray for support to Grow slabs

4.11 Indicative Technical specification of replacement of cladding material

A. Specification, indicative quantity and cost of material used for replacement of Poly Sheet of 4000 sqm size Poly House.

Sr. No.	Items	Description/ Specification	Indicative quantity	Indicative cost (Rs.)
1	Plastic Sheet	UV stabilized 200 micron transparent plastic films, Conforming Indian Standards (IS 15827: 2019), multilayered, anti-drip, anti-fog, anti sulpher (if required), diffused/clear and having minimum 85% level of light transmittance.	6600 sqm	Rs. 3,69,600/- (@ Rs. 56 per sqm).
2	Insect Net	40 mesh nylon Insect proof nets (UV stabilized confirming to IS 16513:2016 standard)	1400 sqm	Rs. 63,000/- (@ Rs. 45 per sqm).
3	Bottom Apron	UV stabilized woven fabric 160 GSM/200 micron poly film and a height of 1 m above ground and 50 cm buried below ground	450 sqm	Rs. 20,250/- (@ Rs. 45 per sqm).
4	Shade Net	UV stabilized 50% shading net (UV stabilized confirming to IS 16008:2016 standard)	4000 sqm	Rs. 1,12,000 (@ Rs. 28 per sqm).
5	Spring	Zigzag high carbon steel with spring action wire of 2-3 mm diameter must be inserted to fix sheet into aluminum/ GI profile	As per requirement for the fixing the cladding material	Rs. 44,150/- (lump-sum)
6	Fitting material-clamps	GI half circle clamps with 2 mm thickness	As per requirement	Rs. 3000/- (lump-sum)
		Total		= 6,12,000/- **Rs. 153/ sqm**

Note: if the beneficiary doesn't installed shade net beneath poly sheet then pro-rata Rs. 28/- per sqm. shall be deducted from the cost

B. Specification, indicative quantity and cost of material used for replacement of cladding material of 4000 sqm. Insect Net House

i. A Net house - with plastic top as addition; > 4.00 meter height, size- 4000 sqm.

Sr. No.	Items	Description/ Specification	Indicative quantity	Indicative cost (Rs.)
1	Plastic Sheet	200 micron thick, UV stabilized, thermic, diffused, Anti dust, Anti drip. Conforming Indian Standards (IS 15827: 2019)	4800 sqm	268800 (@ Rs. 56 per sqm).
2	Insect Net	40 mesh nylon Insect proof nets (UV stabilized confirming to IS 16513:2016 standard)	1056 sqm	47520 (@ Rs. 45 per sqm).
3	Shade Net	UV stabilized 50% shading net (UV stabilized confirming to IS 16008:2016 standard)	4000 sqm	112000 (@ Rs. 28 per sqm).
4	Bottom Apron	UV stabilized woven fabric 160 GSM/200 micron, height of 1 m above ground and 50 cm buried below ground	400 sqm	18000 (@ Rs. 45 per sqm).
5	Spring	Zigzag high carbon steel with spring action wire of 2.3 mm diameter	-	10000 (lumpsum)
				Rate fixed Rs. 114/- per sqm. for subsidy

NOTE: If beneficiary doesn't installed shade net beneath insect net mentioned at sr. no. 3 than pro-rata @ Rs. 28/- per sqm. shall be deducted from the cost.

ii. Net house - dome shape; > 4 meter height, size- 4000 sqm.

Sr. No.	Items	Description/ Specification	Indicative quantity	Indicative cost (Rs.)
1	Insect Net	40 mesh nylon Insect proof nets (UV stabilized confirming to IS 16513:2016 standard)	5700 sqm	256500 (@ Rs. 45 per sqm).
2	Shade Net	UV stabilized 50% shading net (UV stabilized confirming to IS 16008:2016 standard)	4000 sqm	112000 (@ Rs. 28 per sqm).
3	Bottom Apron	UV stabilized woven fabric 160 GSM/200 micron, height of 1 m above ground and 50 cm buried below ground	400 sqm	18000 (@ Rs. 45 per sqm).
4	Spring	Zigzag high carbon steel with spring action wire of 2.3 mm diameter	-	10000 (lumpsum)
				Rate fixed Rs. 97/- per sqm. for subsidy

NOTE: If beneficiary doesn't installed shade net beneath insect net mentioned at sr. no. 2 than pro-rata @ Rs. 28/- per sqm. shall be deducted from the cost.

iii. Net house - flat shape- all GI; > 4 meter height, size- 4000 sqm.

Sr. No.	Items	Description/ Specification	Indicative quantity	Indicative cost (Rs.)
1	Insect Net	40 mesh nylon Insect proof nets (UV stabilized confirming to IS 16513:2016 standard)	5500 sqm	247500 (@ Rs. 45 per sqm).
2	Shade Net	UV stabilized 50% shading net (UV stabilized confirming to IS 16008:2016 standard)	4000 sqm	112000 (@ Rs. 28 per sqm).
3	Bottom Apron	UV stabilized woven fabric 160 GSM/200 micron, height of 1 m above ground and 50 cm buried below ground	400 sqm	18000 (@ Rs. 45 per sqm).
4	Spring	Zigzag high carbon steel with spring action wire of 2.3 mm diameter	-	5000 (lumpsum)
5	Fitting material	GI clumps	-	5000 (lumpsum)
		Rate fixed Rs. 97/- per sqm. for subsidy		

NOTE: If beneficiary doesn't installed shade net beneath insect net mentioned at sr. no. 2 than pro-rata @ Rs. 28/- per sqm. shall be deducted from the cost.

iv. Net house - flat shape- cable purlin; > 4 meter height, size- 4000 sqm.

Sr. No.	Items	Description/ Specification	Indicative quantity	Indicative cost (Rs.)
1	Insect Net	40 mesh nylon Insect proof nets (UV stabilized confirming to IS 16513:2016 standard)	6000 sqm	270000 (@ Rs. 45 per sqm).
2	Shade Net	UV stabilized 50% shading net (UV stabilized confirming to IS 16008:2016 standard)	4000 sqm	112000 (@ Rs. 28 per sqm).
3	Fitting material	Plastic pin	-	10000 (lumpsum)
		Rate fixed Rs. 97/- per sqm. for subsidy		

NOTE: If beneficiary doesn't installed shade net beneath insect net mentioned at sr. no. 2 than pro-rata @ Rs. 28/- per sqm. shall be deducted from the cost.

C. Specification, indicative quantity and cost of material used for replacement of Poly Sheet of Walk-In-Tunnels.

i. Walk-In-Tunnels Size 600 sqm

Sn	Items	Description/ Specification	Indicative quantity	Indicative cost-Rs.
1.	Plastic Sheet	UV stabilized 200 micron transparent plastic films. Conforming Indian Standards (IS 15827: 2019), multilayered, anti-drip, anti- fog, anti-sulphur, diffused/ clear and having minimum 85% level of light transmittance.	900 sqm	Rs. 50,400/- (@Rs. 56 per sqm)
2.	Insect net	40/50 mesh nylon Insect proof nets (UV stabilized) of equivalent size.	270 sqm	Rs. 12,150/- (@Rs.45 per sqm)
3.	Bottom Apron	UV stabilized woven fabric 160 GSM/200 micron poly film and a height of 1m above ground and 50 cm buried below ground (Total width 1.5m)	180 sqm	Rs. 8,100/- (@ Rs.45 per sqm)
4.	Spring	Zigzag high carbon steel with spring action wire of 2.3 mm diameter must be inserted to fix sheet into Aluminum/GI Profile.	As per requirement for fixing the cladding material	Rs. 1,500/- (lump-sum)
5.	Fitting material-Clumps	GI Clumps with minimum 2mm thickness	As per requirement	Rs. 1,500/- (lump-sum)
		Total		Rs. 73,650/- (@ Rs. 122.75 per sqm)

ii. Walk-In-Tunnels Size 400 sqm

Sn	Items	Description/ Specification	Indicative quantity	Indicative cost-Rs.
1.	Plastic Sheet	UV stabilized 200 micron transparent plastic films. Conforming Indian Standards (IS 15827: 2019), multilayered, anti-drip, anti- fog, anti-sulphur, diffused/clear and having minimum 85% level of light transmittance.	750 sqm	Rs. 42,000/- (@Rs. 56 per sqm)
2.	Insect net	40/50 mesh nylon Insect proof nets (UV stabilized) of	180 sqm	Rs. 81,00/- (@Rs.45 per sqm)

		equivalent size.		
3.	Bottom Apron	UV stabilized woven fabric 160 GSM/200 micron poly film and a height of 1m above ground and 50 cm buried below ground (Total width 1.5m)	120 sqm	Rs. 5,400/- (@ Rs.45 per sqm)
4.	Spring	Zigzag high carbon steel with spring action wire of 2.3 mm diameter must be inserted to fix sheet into Aluminum/GI Profile.	As per requirement for fixing the cladding material	Rs. 1,200/- (lump-sum)
5.	Fitting material-Clumps	GI Clumps with minimum 2mm thickness	As per requirement	Rs. 1,300/- (lump-sum)
		Total		Rs. 58,000/- (@ Rs. 145 per sqm)

iii. Walk-In-Tunnels Size 400 sqm with *top vent* height more than 4.25 mtr

Sn	**Items as per departmental specification**	**Description/ Specification**	**Indicative quantity**	**Rate (Rs.)**	**Amount (Rs.)**
1.	Poly Sheet	UV stabilized 200 micron transparent plastic films. Conforming Indian Standards (IS 15827: 2019), multi-layered, anti-drip, anti-fog, anti-sulphur, diffused/ clear and having minimum 85% level of light transmittance.	770 sqm	56	43120
2.	Insect Net	40/50 mesh nylon Insect proof nets (UV stabilized) of equivalent size.	310 sqm	45	13950
3.	Bottom Apron	UV stabilized woven fabric 160 GSM/200 micron poly film and a height of 1m above ground and 50 cm buried below ground (Total width 1.5m)	150 sqm	45	6750
4.	Spring	Zigzag high carbon steel with spring action wire of 2.3 mm diameter must be inserted to fix sheet into Aluminium/GI Profile.	250 mtr		1200 (lump-sum)
5.	Fitting material-curtain clamps	GI Clumps with minimum 2mm thickness	80 pices		1300 (lump-sum)
		UNIT COST Rs. 165/- sqm		**Total**	**66320/- Rs. 165/- sqm**

iv. Walk-In-Tunnels Size 560 sqm with *top vent* height more than 4.25 mtr

Sn	Items as per departmental specification	Description/ Specification	Indicative quantity	Rate (Rs.)	Amount (Rs.)
1.	Poly Sheet	UV stabilized 200 micron transparent plastic films. Conforming Indian Standards (IS 15827: 2019), multi-layered, anti-drip, anti-fog, anti-sulphur, diffused/clear and having minimum 85% level of light transmittance.	1040 sqm	56	58240
2.	Insect Net	40/50 mesh nylon Insect proof nets (UV stabilized) of equivalent size.	400 sqm	45	18000
3.	Bottom Apron	UV stabilized woven fabric 160 GSM/200 micron poly film and a height of 1m above ground and 50 cm buried below ground (Total width 1.5m)	200 sqm	45	9000
4.	Spring	Zigzag high carbon steel with spring action wire of 2.3 mm diameter must be inserted to fix sheet into Aluminium/GI Profile.	360 mtr		1200 (lump-sum)
5.	Fitting material-curtain clamps	GI Clumps with minimum 2mm thickness	120 pices		1300 (lump-sum)
		UNIT COST Rs. 156/- sqm		**Total**	**87740/- Rs. 156/- sqm**

4.12 Indicative Technical Specifications of Plastic Tunnel

Sn.	Types of Plastic Tunnel	Component/Specifications	Cost norm per sqm.
1.	GI wire semicircle structure connected with wires and covered OR Fiber stick semicircle structure connected with wires and covered	**Frame** - GI wire 4 mm, semicircle at every 3 meter distance. OR Fiber stick (5 mm OD or above), semicircle at every 3 meter distance	
		Height - 1 meter,	
		Width - As per crop requirement.	
		Length - As per requirement	
		Top - Plastic sheet- 25 micron	
		Wire - GI wire-2 mm - 3 wires (1 on top and 2 both sides) for supporting to covered material and semicircles	
		In case of Fiber stick tunnel clamp for fixing plastic sheet	
		With Plastic sheet	**Rs. 29/-**
		With non-woven fabric.	**Rs. 25/-**

Note:

- If beneficiary doesn't installed GI wire-2 mm, 3 wires (one on top and two both sides) for supporting to covered material and semicircles mentioned above then **pro-rata @ Rs. 6/- per sqm.** shall be deducted from the unit cost.
- In case of non-installation of plastic clamps **Rs.2/- per sqm** shall be deducted from unit cost.

Chapter- 5

SAMPLE FORMATS

Annexure – 5A

Undertaking for Protected Structures

I. I/We undertake that:

1. The dimensions of the structure will fall within area as per revenue record and *sizra*.
2. The source of irrigation water is available at site.
3. The Soil & water of site are suitable for crop cultivation.
4. The proposed site for structure is free from any kind of obstacles. It has minimum distance of 6.5 m or equal to height of boundary wall/other structure whichever is higher from these structures and minimum distance of 5 m from electric pole and wires and to avoid site through which electric wires crisscross, if any.
5. My/our site is not prone to water stagnation.
6. Water table is not so high to affect foundation and subsequent cultivation at my/our site.
7. My/our site has efficient drainage facility.
8. I/and my fellow farmers agree that I/we have not availed any kind of assistance from any Govt. agency under this component.
9. That I/we have sufficient knowledge to install and run the protected structure. DEPARTMENT is nowhere responsible.
10. I/and my fellow farmers agreed to follow the minimum prescribed specifications and terms and conditions lay by Govt./DEPARTMENT.
11. I/we shall execute the work of MI component through companies/firms registered in Haryana State.
12. I/we shall intimate DEPARTMENT after completion of structure in all respects. I shall remain present and cooperate at the time of physical inspection to be carried out.
13. I/We agree to accept all terms & conditions, norms & guidelines as applicable at the time of sanction.
14. As per requirement of Government contribution entitlement, I/we will maintain structure for 5 years from the date of completion of structure. In case structure is not available on my field during 5 years from the date of completion of structure due to any of reasons, I shall not be entitled for any benefit of subsidies under Govt. scheme and I will be liable to be penalised for the recovery of subsidy on the basis of depreciation value of the structure. The department is free to initiate civil proceeding against me.
15. I/we agreed not to change/modify/remove/dispose/sale the structure during the 5 years period. I shall note that DEPARTMENT will not be responsible for any consequences like Government contribution entitlement variation due to amendments issued by Government, reduction in yield, crop damages etc. arising out of such change/modification/removal/disposal/sale/damage of the structure by me.
16. In case of any damage due to natural calamities either during construction or thereafter I/we shall be responsible, DEPARTMENT shall not be responsible in anyway.
17. I/we shall get insured my structure from insurance company and shall be responsible for the same.

18. I/we should not lodge any false complaint/claim or to create any unpleasant situation and try to settle differences and disputes if any amicably and as far as possible at local level.
19. I shall abide by the norms and guidelines.

I declare that whatever information I have given above is true and any misleading information from my side makes me liable to reject my case for sanction. Violation of any terms and conditions, department may take any appropriate action against me.

Date: Yours faithfully

Signature of Farmer/Lessee/Leaseholder
(Name: _____)

Encls: Documents as per checklist.

II. In case of lease (If applicable):

I/We undertake that:

1. I have not availed assistance for Greenhouse or Hi-tech Horticulture Units from any Govt. agency or department on the land given by me to the leaseholder.
   Or
   I have availed assistance for an area of _____sqm (to be filled by lessor) for _____ (type of structure; to be filled by lessor) under the Govt. assistance program during the year _____ on the other land and not on the land given by me to the leaseholder.

2. I have given my land _____ (Killa No./Murraba No.) to_____ (Name of leaseholder) on registered lease for cultivation of horticulture crops under protected structure. The farmer shall maintain the structure for a period of 5 years failing which the recovery of subsidy shall be executed against him or me. The department is free to initiate civil proceeding against him or me.

Signature of Lessor
(Name: _____)

(For office use only)

Application receipt No. & Date:	
Date of document checking	
Whether suitable for construction for Protected Structure? (Yes/No)	
Whether recommended for sanction? (Yes/No)	
Document & site checked by : (Name & designation: _____	

Signature : _____

Date : _____

Annexure-5B

जमीन मालिक का शपथ–पत्र/सहमती पत्र

मैं, ... सुपुत्र/सुपुत्री/पत्नी श्री ..... गांव .....तहसील ..... जिला ..... का रहने वाला/वाली हूँ और अपने हल्फ से निम्नलिखित ब्यान करता/करती हूँ :–

1. यह कि मैं उक्त पते का स्थाई निवासी हूँ।
2. यह कि मैं कुल जमीन ..... एकड़ का मालिक हूँ।
3. मैने अपनी जमीन गांव ..... तहसील ..... जिला .....में खेवट नं0 ..... . खसरा नं0 ..... किला नं0 ..... श्री ..... सुपुत्र/सुपुत्री/पत्नी श्री .... गांव .....तहसील ..... जिला ..... को ठेके पर/किराए पर/लीज पर दी हुई है जो कि कुल .....एकड ..... कनाल ..... मरला बनती है
4. इस जमीन के ठेके/ किराए/ लीज की अवधी दिनांक ..... से लेकर दिनांक ..... तक है।
5. उपरोक्त ठेकेदार/किराएदार/लीजधारक उपरोक्त जमीन में मौसमी सब्जीयो/फूल/मसाले ....(सब्जी/फूल/मसाले का नाम) की खेती करता है।
6. उद्यान विभाग हरियाणा की योजनाओ के अंतर्गत उपरोक्त सब्जी की फसल पर कोई अनुदान दिया जा रहा है तो वह उपरोक्त ठेकेदार/किराएदार/लीजधारक के बैंक खाते में सीधे स्थानांतरित कर दिया जाए।
7. जैसा कि विभाग के नियमानुसार मालिक व ठेकेदार/किराएदार/लीजधारक दोनों की अनुदान सीमा (संयुक्त रूप से मिलाकर) विभाग द्वारा निर्धारित कुल अधिकतम सीमा से अधिक नहीं हो सकती। इसलिए मैं और मेरा ठेकेदार/किराएदार/लीजधारक विभाग द्वारा निर्धारित अनुदान की अधिकतम सीमा तक ही योग्य होंगें। इस सीमा से अधिक अनुदान होने पर मैं सब्सिडी वापिस करने के लिए वचनबद्ध हुँगा। इस दशा में विभाग द्वारा लगाई गई पाबन्दी का मैं पालन करूँगा। मेरे को इस पर कोई आपत्ति नहीं है तथा न ही भविष्य में कोई आपत्ति रहेगी।
8. मेरा उपरोक्त ठेकेदार/किराएदार/लीजधारक अपने खुद के नाम से विभाग में आवेदन करेगा तथा मेरी फसल मेरा ब्यौरा पोर्टल पर अपने ही नाम से अपने खुद के मोबाईल न0. के साथ रजिस्ट्रेशन करवाने के लिए हकदार होगा।
9. उपरोक्त जमीन पर इससे पहले मेरे द्वारा तथा किसी अन्य मेरे ठेकेदार/किराएदार/लीजधारक द्वारा उपरोक्त मद में अनुदान राशी किसी भी राज्य सरकार या भारत सरकार की योजना में प्राप्त नहीं की है।
10. मैं विभाग की नार्मस एवं गाइडलाईन की पालना के लिए पाबन्ध रहूंगा।

(जमीन मालिक के हस्ताक्षर)

दिनांक

नामः.....

मोबाईल न0:.....

Annexure-5C

Attendance report of the manpower/labour involved in construction of greenhouse/hi-tech horticulture units to be maintained by the farmer in case of self-construction

Sn.	Date (dd/mm/yyyy)	Name of person	Mob. No.	Signature

Note: The format is required at the time of final inspection and before release of subsidy.

Encl: copy of aadhar card of manpower enclosed.

(Signature of farmer)
Name of Farmer:

Chapter – 6

GST and E-way Bill

- **GST**: The goods and services tax (GST) is a value-added tax (VAT) levied on most goods and services sold for domestic consumption. The GST is paid by consumers, but it is remitted to the government by the businesses selling the goods and services.
- **HSN Code**: Harmonized system of Nomenclature (HSN) is a unique code to classify commodities for Customs and Central Excise. It is a 06- or 08-digit number classifying a commodity/ good thus eliminate the need to upload the detailed description of the goods saving time and make filing easier since GST returns are automated.
- **E-way Bill**: A waybill is a receipt, or a document issued by a carrier giving details and instructions relating to the shipment of a consignment of goods and the details include name of consignor, consignee, the point of origin of the consignment, its destination, and route. Electronic Way Bill (E-Way Bill) is basically a compliance mechanism wherein by way of a digital interface the person causing the movement of goods uploads the relevant information prior to the commencement of movement of goods and generates e-way bill on the GST portal.

  The E-way bills are mandatory for bills of material over Rs. 50,000/- to be issued by the supplier to the borrower /farmer. This does not however preclude the consignor/consignee/transporter to generate e-way bills even for individual consignments whose value is less than Rs.50000/- per consignment.

Table: HSN Code and GST % on various commodity/goods

Sn.	Material/ Particular	HSN Code	GST %	Description
1	Green house	94069010	18	Prefabricated buildings: means buildings which are finished in the factory or put up as elements, presented together, to be assembled on site, such as housing or worksite accommodation, offices, schools, shops, sheds, garages or similar building. Prefabricated building include "modular building units" of steel, normally presented in the size and shape of a standard shipping container, but substantially or completely pre-fitted internally. Such modular building units are normally designed to be assembled together to form permanent buildings. **SGST/UTGST** – Heading nos. 9406 - *Vide notification nos. 1/2017-C.T (Rate) & 1/2017-I.T. (Rate), dated 28.06.2017 and GST/UTGST notifications*.
2	Galvanized Iron Pipes/columns	73063090	18	Other tubes, pipes & follow profile (for example open seam or welded, riveted or similarly closed), Iron or steel. **SGST/UTGST** – Heading nos. 7306 - *Vide notification nos. 1/2017-C.T (Rate) & 1/2017-I.T. (Rate), dated 28.06.2017 and GST/UTGST notifications*.
3	GI Profile	73089090	18	**SGST/UTGST** – Heading nos. 7308: Structures (excluding prefabricated building of heading 9406) and parts of structures (for example, bridges and bridge –sections, lock-gates, towers, lattice masts, roofs, roofing frame-works, doors and windows and their frames and thresholds for doors, and shutters, balustrades, pillars, and columns), of iron or steel; plates, rods, angels, shapes section, tubes and the like, prepared for using structures, of iron or steel (other than transmission towers). *Vide notification nos. 1/2017-C.T (Rate) & 1/2017-I.T.*

				(Rate), dated 28.06.2017 and GST/UTGST notifications.
4	Aluminium Door	761010	18	**SGST/UTGST** – Heading nos. 7310: Aluminium structures (excluding prefabricated buildings of heading 9406) and parts of structures (for example, bridges and bridge-sections, towers, lattice masts, roofs, roofing frameworks, balustrades, pillars and columns); aluminium plates, rods, profiles, tubes and the like, prepared for use in structures. *Vide notification nos. 1/2017-C.T (Rate) & 1/2017-I.T. (Rate), dated 28.06.2017 and GST/UTGST notifications*.
5	Shade net	6005	5	**SGST/UTGST** – Heading nos. 6005: Warp knit fabrics (including those made on galloon knitting machines), other than those of headings 6001 to 6004. *Vide notification nos. 5/2017-C.T (Rate) & 5/2017-I.T. (Rate), dated 28.06.2017 and GST/UTGST notifications*.
6	Insect net	54072090	5	**SGST/UTGST** – Heading nos. 5407: Woven fabrics of synthetic filament yarn, including woven fabrics obtained from materials of heading 5404. *Vide notification nos. 1/2017-C.T (Rate) & 1/2017-I.T. (Rate), dated 28.06.2017 and GST/UTGST notifications*.
7	Drip Irrigation	842482	12	**SGST/UTGST** – Heading nos. 8424: Sprinklers; Drip Irrigation system including laterals; mechanical sprayers. *Vide notification nos. 1/2017-C.T (Rate) & 1/2017-I.T. (Rate), dated 28.06.2017 and GST/UTGST notifications*.
8	Nut Bolts, Self screw	73181500	18	**SGST/UTGST** – Heading nos. 7318: Screws, bolts, nuts, coach-screws, screw hooks, rivets, cotters, cotter-pins, washers (including spring washers) and similar articles, of irons or steel. *Vide notification nos. 1/2017-C.T (Rate) & 1/2017-I.T. (Rate), dated 28.06.2017 and GST/UTGST notifications*.
9	Spring insert (Z Shaped)	72171010	18	**SGST/UTGST** – Heading nos. 7217: Wire of iron non-alloy steel. *Vide notification nos. 1/2017-C.T (Rate) & 1/2017-I.T. (Rate), dated 28.06.2017 and GST/UTGST notifications*.
10	PVC Pipes	39172310	18	**SGST/UTGST** – Heading nos. 3917: Tubes, pipes and hoses, and fittings therefore (for example, joints, elbows, flanges), of plastics. *Vide notification nos. 1/2017-C.T (Rate) & 1/2017-I.T. (Rate), dated 28.06.2017 and GST/UTGST notifications*.
11	Poly Sheet	3920	18	**SGST/UTGST** – Heading nos. 3920: Other plates, sheets, film, foil and strip, of plastics, non - cellular and not reinforced, laminated, supported or similarly combined with other materials. *Vide notification nos. 1/2017-C.T (Rate) & 1/2017-I.T. (Rate), dated 28.06.2017 and GST/UTGST notifications*.

- The bills submitted by the farmer or firm must include these HSN codes as mentioned above in the bills & GST paid must be mentioned accordingly. In case of replacement of cladding material i.e. HSN of individual material (i.e. HSN code other than 94069010), should be mentioned in the GST bills. The list is not exhaustive.
- In case of greenhouse GST bill with HSN code 94069010 is acceptable, since as per GST laws, greenhouse as a whole is supplied by the firm to the borrower/farmer.
- In case of construction of greenhouse in self-capacity by the farmer, the labour bills/receipt shall not exceed more than 15% of the total cost of the structure (exclusive of/ without GST).

- "Bill To Ship To" model: In a supply model, there are three persons involved in a transaction, namely:

    - 'A' is the person who has ordered 'B' to send goods directly to 'C'.
    - 'B' is the person who is sending goods directly to 'C' on behalf of 'A'.
    - 'C' is the recipient of goods.

    In this complete scenario two supplies are involved and accordingly two tax invoices are required to be issued:

    - **Invoice -1**, which would be issued by 'B' to 'A'.
    - **Invoice -2** which would be issued by 'A' to 'C'.

- A matter has been noticed in the department that who would generate the e-Way Bill for the movement of goods which is taking place from 'B' to 'C' on behalf of 'A'. It is clarified that as per the CGST Rules, 2017 either 'A' of 'B' can generate the e-way bill but it may be noted that only one e-Way bill is required to be generated.

    Where 'A' presents 'Empanelled firm, 'B' presents 'Supplier to Empanelled firm' and 'C' Presents 'Farmer'.
- Further, in case a farmer has requested to get additional material/component from the firm, separate GST bill shall be issued to the farmers by the firm. The GST bill as per sanction issued by the concerned DHO shall be applicable for subsidy.

Chapter – 7

BIS Standards of material

BIS: Bureau of Indian Standard (BIS) is the National Standard Body of India established under the BIS Act 2016 for the harmonious development of the activities of standardization, marking and quality certification of goods and for matters connected therewith or incidental thereto. The BIS has fixed standards of material under protected cultivation. The detail of BIS standard is as under:

Sn.	Component	BIS Standards
1.	Shade net	IS 16008:2016
2.	Insect Net	IS 16513:2016
3.	Poly Sheet	IS 15827: 2019
4.	Plastic Mulching	IS 17216:2019
5.	Drip Irrigation system	
	Laterals	IS 12786:1989
	Emitting pipes	IS 13488:2008
	HDPE pipes	IS 4984:1995 & IS 14151: 2008 Part – II
	PVC pipes	IS 4985: 2000
	Emitters/Drippers	IS 13487: 1992

The BIS standards are fixed for few material and latest instructions issued by the State/Central Govt. regarding BIS standards of material under protected cultivation, shall be applicable prospectively.