OPERATIONAL GUIDE LINES OF PROJECTS ON POST HARVEST MANAGEMENT UNDER NATIONAL HORTICULTURE MISSION

2012-13

OPERATIONAL GUIDE LINES FOR SANCTION OF PROJECT/ RELEASE OF CREDIT LINKED BACK ENDED SUBSIDY FOR POST HARVEST MANAGEMENT UNDER NHM (REVISED)

1. INTRODUCTION :

1.1 Post Harvest Management (PHM) plays very important role in Horticultural production and marketing. This is because of a considerable quantity of the valuable produce is lost due to improper post harvest management. As a result there is a sizeable gap between gross production and net availability of horticultural produce. Thus a crisis in food availability is not only caused by the natural disasters, but also by absolute lack of post harvest management.

1.2 The State is lagging behind in organized set up for post harvest handling and marketing of various fruits and vegetables, leading to various kinds of losses. The losses mainly occur at field level, during post harvest handling, transportation and finally during marketing. These losses can be minimized by proper grading, packing, pre-cooling and transportation particularly with cool chain facility.

1.3 The post harvest management facilities are essential for value addition of produce, reduction of transit loss and increasing profit of the farmers.

2. PUBLICITY :

2.1 Advertisement for the establishment/acquiring different PHM units in private sector will be released from time to time by DDH/ADH/AHO, OHDS, Director of Horticulture-cum-Secretary, OHDS for the State keeping in view the allocations under NHM programmed for the same.

2.2 The entrepreneur will collect the application form (Annexure-I & II) on payment of Rs.200/- (non refundable) as processing fee not applicable for Zero energy cool chamber from the office of the DDH/ADH/AHO, OHDS. The processing fees can be used by DDH/ADH/AHO, OHDS in meeting the contingent expenditure in this regard. However, mere payment of Rs.200/- does not entitle for sanction of project. Project sanction will depend on suitability of project, bank sanction, acceptance at Govt. of India level & availability of funds etc.

2.3 The entrepreneur will submit the application and the project to the

DDH/ADH/AHO, OH along with the original money receipt and attested photocopies of required documents as per guide line (Annexure – I & II).

2.4 Validity period for submission of application shall be 90 days from the date of purchase.

3. <u>ELIGIBILITY :</u> (Where ever applicable) :

3.1 All the projects will be entrepreneur driven through commercial ventures for which Govt. Assistance will be credit linked back ended subsidy in accordance with the cost norm. Public Sector Undertakings, State Govt. Agencies, Co- operatives, growers' association, Farmer Group, Self Help Groups, Women Farmers' Groups, recognized/registered by DMC having at least 25 nos. of members will also are entitled to avail assistance for such activities to the same extent. However, assistance will not be credit linked for such agencies but would be back ended subject to condition that they are able to meet their share of the project cost.

3.2 The assistance will be available to the individual, Society, Regd. Society, Companies and Corporation etc. as per NHM guide lines. However the person having received such grant from N.H.B. or NHM or any other State/Central Govt. etc. for the similar type of item shall not be entitled to avail assistance again on all those items.

3.3 Preference will be given to the individuals/organizations with adequate suitable land within the district with agri-horti farming / contract farming or wholesaler / trader in horticultural produce. Degree holder in Agriculture, Horticulture, Agricultural Engineering, Management, Rural Management, Veterinary Science, may also be given preference.

3.4 The entrepreneur / beneficiary should have sound financial back ground.

3.5 In case of whole sale trading, the annual turnover/income tax return / vat clearance should be furnished.

3.6 In case of contract farming the agreement as per APMC Act should be furnished.

3.7 The entrepreneur/beneficiary should have willingness for availing the Credit Linked back ended subsidy.

3.8 The AHO / ADH, OHDS will send the valid applications / projects to the DDH, OHDS.

3.9 A preliminary scrutiny of all such applications (Annexure – I & II) received shall be done by a committee consisting of the DDH/ADH/AHO, OHDS, A.A.E. O/o DDH OHDS as members for short listing of the applications basing on guide lines of GOI including the land and other documents. Such meetings shall normally be conducted on monthly basis. The applicants not found suitable may be communicated with the deficiencies by registered post with one copy to notice board.

4 LAND & LOCATION (For the land based projects, in other cases the details of business address of the entrepreneur / beneficiary along with proof of the same) :

4.1. The land should be in the name of the entrepreneur and records should be down loaded from bhulekhori.nic.in and attested by concerned Tahasildar or an Gazetted officer not below the rank of Sub Divisional officer. He / She is to submit certified copy of the land in original from concerned Tahasil.

4.1 If joint property, No Objection Certificate of the share holder(s) of the said land in the form of affidavit sworn before the Executive Magistrate of 1st class should be submitted.

4.2 In case of lease land, if the leasee can mortgage the land in favour of the financing bank/FI, can also be entertained if bank is satisfied.

4.3 The project for post harvest management should aim at providing "direct" service delivery to producers / farming community for safe utilization/marketing of their produce.

4.4 Cost of land in infrastructure projects will be restricted to a maximum of 10% of the project cost in rural areas and to 20% in municipal areas and it would form part of the owner's contribution to be taken towards margin money in cases where a fresh purchase is made as per guide lines of NHM.

4.5 A declaration that the entrepreneur will not alienate the land / infrastructure acquired during the period of the loan for any purpose other than the purpose for which the loan is sanctioned should be submitted.

SELECTION OF SITE: (For land based projects) :

4.6 The site should be well communicated with truckable all whether road.

4.7 The site should have easy access to electricity.

4.8 There must be permanent and adequate water source or should have provision to acquire with.

4.9 The sketch map of the site with description of boundaries duly signed by revenue inspector should be verified with the Patta, Khata No. Plot No., revenue receipt etc.

4.10 Area should be also otherwise suitable for efficient functioning of the proposed Post Harvesting Management Unit.

5 SELECTION / PRIORITISATION

5.1 The selected applications (Annexure – I & II) under para 3.9 shall be placed before the DMC by the DDH, OHDS for its approval. The technical team of the District Mission Committee (DMC) will effect field verification, scrutinize the short listed applications and give appropriate recommendation. The DMC will approve the selected entrepreneurs and prioritize them.

5.2 There after, the DDH, OHDS will intimate the panel of prioritized entrepreneurs along with the DMC proceedings and selected applications (Annexure – I & II) to the Secretary, OHDS for formal approval.

5.3 Secretary, OHDS will send proposals to the NHM, Govt. of India with a copy to State Govt. for approval and release of funds, wherever applicable.

5.4 After getting project, sanctioned or cleared by the NHM, Govt. of India with provision of funds, the Director of Horticulture-cum-Secretary, OHDS will ask the DDH, OHDS , to go ahead with the project execution indicating the name of the entrepreneurs along with sanction of funds for subsidy amount. The unsuccessful applicants shall be intimated by the DDH, OHDS by registered post/Speed Post.

5.5 The DDH/ADH/AHO, OHDS will communicate the sanctioned projects to the bank and entrepreneur for further execution of the project. The components which are not under credit linked back ended scheme the subsidy will be routed through bearer cheque to the beneficiary after joint verification by the team following norms and condition.

6 CREDIT LINKED ASSISTANCE :

Assistance under the scheme shall be available on capital cost of the project only. The Bank/FI will however, be free to finance other activities/working capital requirement to meet various requirements of the entrepreneur, where subsidy will not be available for such activities.

7 SUBSIDY :

INTEGRATED POST HARVEST MANAGEMENT

7.1 Rate of subsidy and maximum amount of subsidy shall be on the capital cost of the project as follows.

Sl. No	*Name of the Project*	*Capital cost per unit (in Rs.)*	*Rate of assistance per unit (subsidy amount)*
1.	*Pack House (on farm collection & Storage unit)*	*Rs.3.00 lakhs max. per unit size of 9m x 6m*	*50% of the capital cost (i)Depending the requirement in site beneficiary can go for pack house with sorting grading unit (ii)Pack house with low capacity cool chamber of 1.4MT*
2.	*Pre cooling unit project in general areas/cool chamber of 5MT/10MT*	*Rs.15.00 lakhs for 6 MT capacity.*	*Credit Linked back ended subsidy @ 40% of the cost of the project in general areas &55% in Hilly and Scheduled Areas.*
3.	*Mobile pre cooling unit*	*Rs.24.00 lakhs per unit for 5 MT capacity.*	*Credit Linked back ended subsidy @ 40% of the cost of the project in general areas&55% in Hilly and Sheduled Area .*
4.	*Cold storage units (construction/ expansio n / modernization)*	*Rs.6000/- per MT for 5,000 MT capacity*	*Credit Linked back ended subsidy @ 40% of the cost of the project in general areas&55% in Hilly and Sheduled Areas. They will adopt new technologies which are energy efficient with provision of insulation, humidity control and fin coil cooling system with provision of multi chambers. Technical standards, parameters and protocol issued by the Deptt. to be adopted.*
5.	*Refrigerated vans / containers*	*Rs.24.00 lakhs per unit 6 MT capacity.*	*-do-*

6.	*Ripening chamber*	*Rs.6000/- per MT for 5000 MT capacity*	*-do-*
7.	Minimal processing unit	*Rs.24.00 lakhs per unit*	-do-
8.	*Preservation unit up gradation*	*Rs.1.00 lakh per*	*50% of the total cost*
9.	*Preservation unit (low cost) new unitcool chamber 2MT capacity*	*Rs.2.00 lakh per unit for new unit(maximum)*	*50% of the total cost. The cool chamber is recommended exclusively in vegetable mandi/market .provision can be made inside the pack house for storing vegetables*
10.	*Low cost onion storage structure (25 MT)*	*Rs.1.00 lakh per unit*	*50% of the total cost*
11.	*Pusa Zero energy cool chamber (100 kg.)*	*Rs.4,000/- per unit*	*50% of the total cost.*
12.	*C.A./M.A. Storage Units*	*Rs.32,000/ MT for 5000 MT capacity*	*Credit Linked back ended subsidy @ 40% of the cost of the project in general areas for individual entrepreneurs in respect of any those units which adopt new technologies which are energy efficient with provision of insulation, humidity control and fin coil cooling system with provision of multi chambers. Technical standards, parameters and protocol issued by the Deptt. to be adopted*
13.	*Primary/Mobile/Mini m al processing unit*	*s.24.00lakh / unitt*	*-do-*
14.	*Evaporative/low energy cool chamber (8 MT)*	*Rs.4.00 lakh / unit*	*50% of the total cost*

(**C.A. is Controlled Atmosphere and M.A. is Modified Atmosphere)**

i. Assistance for setting up of new cold storage / CA Storage / MA storage will be available only to multi chamber cold storage units with latest/new technologies, which are energy efficient with provision for insulation, humidity control, advanced cooling systems etc, having specifications and standards approved by the Ministry.

ii) The cost of 5,000 MT capacities for new cold storage and expansion of existing capacity should not exceed to Rs.300.00 lakhs. Subsidy will be available for capital cost i.e. @ 40% which in any case should not exceed to Rs.120.00 lakh per project in case of general Area and Rs 165.00 lakh in Hilly and Scheduled Area.

iii) Projects up to 5000 MT capacity would be promoted for wider dispersal. Cold storage capacity may vary from 10 MT to 5000 MT (i.e. the cold storages may be established for capacity of different sizes i.e.10 / 50 / 1000 / 2000 / 5000 MT etc.) depending upon volume, value of the commodities to be stored, technical feasibility, financial viability etc. In the case of pre-cooling units and CA/MA stores, the capacity may be even below 10 MT.

7.2 The Cold Storages need to ensure the following:

a) Coils and diffuser systems which have efficient heat transfer surface area and air circulation must be used for maintaining uniform temperature and humidity conditions.

b) Refrigeration equipments should be capable of handling varying cooling requirements in the cold storage. Refrigerant used must be eco friendly. Moreover, refrigeration system should be equipped with monitoring and control mechanism to ensure maximum efficiency.

c) Compressors should be multi cylinder of reciprocating or screw type with appropriate capacity.

d) Condensers need to be properly designed to moderate operating hours of cold store and thus reduce power consumption.

e) Proper thermal insulation need to be used with provision for vapour barrier on the outer side and cladding/cover material on the inner side. Besides, appropriate BIS standards for insulation (IS 661:2000) and appropriate method of deployment of thermal insulation in accordance with IS 661 and IS 13205 on code of practices should be ensured.

f) Qualified and trained personnel should be involved for proper running and maintenance of the storage unit.

g) At least two chambers need to be provided even if the capacity of the storage is low.

h) Each chamber should be provided with suitable controls and display instruments for temperature and humidity.

i) The cold storage should have proper mezzanine floors for bulk storage of produce in bags/boxes with proper spacing between the floors.

j) The cold stores should have adequate space for processing area involving mechanized sorting, grading, washing, packing / bagging lines.

k) For up gradation of thermal insulation of cold storage, the project cost will be limited to Rs.1000/MT and for up gradation of cooling system , air flow, electric installation, handling devices, safety devices, etc the project cost will be limited to Rs.2000/MT.

l) Detailed guide lines in this regard with specifications and protocol are available on NHM website at (www.nhm.nic.in) and NHB web site (www.nhb.gov.in).

m) Assistance could also be availed for a combination of PHM infrastructure by a beneficiary, within the prescribed norms of individual item.

7.3 *Maximum amount of subsidy cost shall be restricted as indicated above. However the entrepreneur will be free to undertake PHM unit of higher cost by contribution from his own resources or other financial assistance.*

7.4 The amount of subsidy availed for the project or any of its components from any other source shall be deducted from the amount of subsidy admissible under this scheme.

7.5 The full project cost including the subsidy amount, but excluding the margin money contribution would be disbursed as term loan by the bank/FI Quantum of margin money and loan to be given by the bank will be decided by the bank/FI on case to case basis.

7.6 The repayment schedule will be drawn on the loan amount in such a way that the total subsidy amount is adjusted after the full bank loan component with interest (excluding subsidy) is liquidated.

7.7 The financing bank may also provide working capital separately for undertaking the business by the entrepreneur where ever such situation arises but subsidy shall not be provided for such funding.

7.8 The financing bank may also provide working capital separately for undertaking the business by the entrepreneur where ever such situation arises but subsidy shall not be provided for such funding.

7.9 After the loan is disbursed, the project work shall start.

7.10 After disbursing a part of the loan sanctioned the respective bank/FI will claim for the subsidy to the Horticulturist & Branch Manager-II, OHDS / AHO & Branch Manager-II, OHDS. The number of claims and release of subsidy may be 2-3 installments. The final subsidy claim shall be made after the disbursement of last installment.

8 RELEASE OF SUBSIDY :

8.1 Subsidy for the project under the scheme shall be released by DDH/ADH, OHDS for projects financed by Banks/FI.

8.2 A joint inspection committee comprising of DDH, ADH, AHO , Asst. Agril. Engineer, O/o DDH, representative from collectorate & representative from the Bank will inspect the site periodically to observe the progress of the work. If required the DDH/ADH, OHDS is to release subsidy proportionately in the basis of the joint inspection committee.

8.3 The DDH/ADH, OHDS will release the subsidy within 30 days of requisition from the bank and in case of delay he will communicate the reasons for delay or non release to bank and the entrepreneur and Director of Horticulture-cum- Secretary, OHDS Orissa. . In case of dispute, decision of the Director of Horticulture-cum-Secretary, OHDS, Orissa shall be final and binding.

8.4 Subsidy should be released with proper intimation to the Collector-cum- Chairman, DMC of National Horticulture Mission by DDH /ADH ,OHDS.

9 ADJUSTMENT OF SUBSIDY IN BORROWERS ACCOUNT :

9.1 The subsidy amount released by the DDH/ADH, OHDS will be kept by the Bank in the Subsidy Reserve Fund Account of the concerned borrower, to be adjusted finally against loan amount of the bank on completion of the project. The adjustment of subsidy will be in the pattern of back ended subsidy. However, no interest will be charged by the lending banks on the loan amount equivalent to the subsidy amount received by

them. Suitable instructions issued in this regard by the RBI from time to time would be adhered to.

9.2 On completion of the project the concerned bank would inform the DDH/ADH/AHO, OHDS about the project completion within the overall guide lines of NHM and project submitted and shall make a request for joint inspection of the project in presence of the promoter/entrepreneur.

9.3 The ADH / AHO will effect joint verification by the technical team constituted by the Chairman DMC of National Horticulture Mission along with the banker and the promoter/entrepreneur.

10 IMPLEMENTATION PERIOD :

10.1 Period of implementation will be as per norms of the lending bank or NHM guide lines, depending upon the nature of the project.

11 RECALLING OF SUBSIDY :

11.1 In case of default in payment of the loan the bank will adopt due process of loan recovery.

11.2 The Horticulturist & Branch Manager-II, OHDS /AHO Branch Manager-II, OHDS shall recall the subsidy amount before its liquidation whenever he feels that the entrepreneur is deviating from the original aim and objective of the project/the project is not completed within the stipulated period or any other valid reason with approval of DMC of National Horticulture Mission.

12 UTILIZATION CERTIFICATE :

12.1 Bank would submit the utilization certificate of the subsidy amount released by the DDH/ADH, OHDS periodically who in turn shall furnish the UC to the DDH/ADH, OHDS which will be finally sent by DDH , OHDS after his countersignature to the Director of Horticulture-cum- Secretary, OHDS.

13 MISCELLANEOUS :

13.1 NHM or OHDS shall be fully competent to add, relax, delete or amend any provisions for any activities under Post Harvest Management.

13.2 The beneficiary will depict a signboard (2m x 3m) at a prominent place depicting name of the entrepreneur, location and fact of assistance under NHM along with logo of NHM as well as OHDS. In case of van or movable units, the same will be

depicted on the body of the units appropriately. This will be examined by Joint inspection committee of the District before recommendations to Director of Horticulture-cum-Secretary, OHDS, Orissa.

14 LIST OF COMPANIES :

14.1. List of few companies engaged in Refrigeration works are mentioned in Annexure-IV.

CHECK LIST (FOR OFFICIAL USE)

Technical Standards for Special Equipments for Carriage of Perishable Food Stuff including Fresh Horticulture Produce.

1. Scope :

These Technical Standards are applicable for special equipments such as refrigerated and mechanically refrigerated lorries, trailers, semi trailers, wagons, containers and other similar equipment used for carriage of fresh horticulture produce including fresh fruits, vegetables i.e. which have only been washed, peeled or simply cut in half and flowers, cut vegetables i.e. raw vegetables which have been diced sliced or otherwise and cut flowers, in addition to any other perishable food stuff.

2. Harmonizing with of provisions of ECE/TRANS/219 as amended on 2nd January, 2011 by Inland Transport Committee of Economic Commission for Europe :

ECE / TRANS / 219 deals with special equipments for carriage of perishable food stuff. However, it provides for technical standards for special equipments in respect of mean outside temperature of +30^{O}C which in Indian condition may be as high as +35^{O}C, upper range of inside chamber temperature as +12^{O}C without any reference to relative humidity, whereas in case of fresh fruits and vegetables in side body of equipment temperature may be required to go up to 20^{O}C and relative humidity as high as 95% plus. However, relevant provisions of the Agreement on the International Carriage of Perishable Foods Stuffs and on the Special Equipment to be used for such Carriage (ATP) bearing reference No.ECE / TRANS / 219 and as amended on 2nd January, 2011 by Inland Transport

Committee of Economic Commission for Europe, may be adopted as far as applicable with above mentioned modification of temperature and humidity ranges.

3. Definitions:

Definitions of certain terms as provided in ECE/TRANSA/219 and as amended on 2nd January, 2011 by Inland Transport Committee of Economic Commission for Europe have been generally adopted with modification in respect to outside mean temperature and temperature and humidity inside the body of equipment.

3.1 **Insulated Equipment** – *Equipment of which the body i.e. Body of Wagons, Lorries, trailers, semi-trailers, containers and other similar equipment is built with insulating walls, doors, floor and roof, by which heat exchanges between the inside and outside of the body can be so limited that the overall co-efficient of heat transfer (K co-efficient), is such that the equipment is assignable to one or other of the following two categories.*

I_N = Normally insulated equipment specified by: - a K co-efficient equal to or less than 0.70 W/m^2 K:

I_R = Heavily insulated equipment specified by :- a K co-efficient equal to or less than 0.40 W/m^2 K and by side walls with a thickness of at least 45 mm for transport equipment of a width greater than 2.50m.

3.2 *Refrigerated Equipment: Insulated equipment which, using a source of cold (natural ice, with or without the addition of salt, eutectic plates, dry ice with or without sublimation control; liquefied gases with or without evaporation control etc.) other than a mechanical or "absorption" unit is capable with a mean outside temperature of +35^{o}C of lowering the temperature inside the empty body to and thereafter maintaining it.*

At +7^{o}C maximum in the case of Class A;
At -10^{o}C maximum in the case of Class B;
At – 20^{o}C maximum in the case of Class C and
At 0^{o}C maximum in the case of Class D;

The K co-efficient of refrigerated equipment of classes B and C shall in every case be equal to or less than 0.40 W/m^2.K.

3.3 **Mechanically refrigerated equipment** – *Insulated equipment either fitted with its own refrigerating appliance, or served jointly*

with other units of transport equipment by such an appliance (fitted with either a mechanical compressor, or an "absorption" device, etc.). The appliance shall be capable, with a mean outside temperature of +35^{O}C of lowering the temperature T_i inside the empty body to, and thereafter maintaining it continuously in the following manner at.

In the case of classes A, B and C, any desired practically constant inside temperature T_i in conformity with the standards defined below for the three classes.

Class – A - *Mechanically refrigerated equipment fitted with a refrigerating appliance such that T_i may be chosen between + 20^{O}C and 0^{O}C inclusive.*

Class – B – *Mechanically refrigerated equipment fitted with a refrigerating appliance such that T_i may be chosen between + 20^{O}C and – 10^{O}C inclusive.*

Class – C - *Mechanically refrigerated equipment fitted with a refrigerating appliance such that T_i may be chosen between +20^{O}C and – 20^{O}C inclusive.*

In the case of classes D, E and F, a fixed practically constant inside temperature T_i in conformity with the standards is defined below for the three classes.

Class – D - *Mechanically refrigerated equipment fitted with a refrigerating appliance such that T_i is equal to or less than 0^{O}C.*

Class – E - *Mechanically refrigerated equipment fitted with a refrigerating appliance such that T_i is equal to or less than - 10^{O}C.*

Class – F - *Mechanically refrigerated equipment fitted with a refrigerating appliance such that T_i is equal to or less than - 20^{O}C.*

The K co-efficient of equipment of classes B.C, E and F shall in every case be equal to or less than 0.40 W/m^{2}. K.

3.4 Heated equipment - *Insulated equipment which is capable of raising the inside temperature of the empty body to, and thereafter maintaining it for not less than*
12 hours without renewal of supply at a practically constant value of not less than + 20^{O}C when the mean outside temperature, as indicated below.

- ***10^{O}C in the case of Class A heated equipment***

- ***$20^{O}C$ in the case of Class B heated equipment***

The K co-efficient of equipment of Class B shall in every case be equal to or less than 0.40 W/m^2 K.

4. PROVISIONS RELATING TO THE CHECKING OF INSULATED, REFRIGERATED, MECHANICALLY REFRIGERATED OR HEATED EQUIPMENT FOR COMPLIANCE WITH THE STANDARDS:

For this purpose, relevant provisions of the Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be used for such Carriage (ATP) bearing reference No.ECE/TRANS/219 and as amended on 2nd January, 2011 by Inland Transport Committee of Economic Commission for Europe, are to be adopted with modifications in test conditions required in view of modifications in definition of equipment.

5. **METHODS AND PROCEDURES FOR MEASURING AND CHECKING THE INSULATING CAPACITY AND THE EFFICIENCY OF THE COOLING OR HEATING APPLIANCES OF SPECIAL EQUIPMENT FOR THE CARRIAGE OF ERISHABLE FOOD STUFFS INCLUDING FRESH HORTICULTURE PRODUCE**:

For this purpose, relevant provisions of the Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be used for such Carriage (ATP) bearing reference No.ECE / TRANS / 219 and as amended on 2nd January, 2011 by Inland Transport Committee of Economic Commission for Europe, are to be adopted with modifications in method and procedure required in view of modifications in definition of classes of equipment.

6. FORM OF CERTIFICATE FOR INSULATED, REFRIGERATED, MECHANICALLY REFRIGERATED OR HEATED EQUIPMENT USED FOR THE INTERNATIONAL CARRIAGE OF PERISHABLE FOODSTUFFS INCLUDING FRESH HORTICULTURE PRODUCE BY LAND:

For this purpose, relevant provisions of the Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be used for such Carriage (ATP) bearing reference No.ECE/TRANS/219 and as amended on 2nd January, 2011 by Inland Transport Committee of Economic Commission for Europe, are to be adopted with modifications in formats required in view of modifications in definition of classes of equipment.

7. CERTIFICATION PLATE OF COMPLIANCE OF EQUIPMENT:

With regard to certification plate etc for types of carriages suitable for perishable food stuff including fresh horticulture produce, relevant provisions of the Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be used for such Carriage (ATP) bearing reference No.ECE/TRANS/219 and as amended on 2nd January, 2011 by Inland Transport Committee of Economic Commission for Europe, are to be adopted with modifications that the letters "ATP" substituted by "ITP".

8. DISTINGUISHING MARKS TO BE AFFIXED TO SPECIAL EQUIPMENT:

The distinguishing marks prescribed in relevant provisions of Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be used for such Carriage (ATP) bearing reference No.ECE/TRANS/219 and as amended on 2nd January, 2011 by Inland Transport Committee of Economic Commission for Europe, are to be adopted. It shall consist of capital letters in dark blue on white ground. The height of the letters shall be at least 100mm for the classification marks and at least 50mm for the expiry dates. For special equipment, such as a laden vehicle with maximum mass not exceeding 3.5t, the height of classification marks could likewise be 50mm and at least 25mm for expiry dates. The classification and expiry marks shall at least be affixed externally on both sides in the upper corners near the front. The marks shall be as follows :

Equipment	Distinguishing Mark
Normally insulated equipment	***IN***
Heavily insulated equipment	***IR***
Class A refrigerated equipment with normal insulation	***RNA***
Class A refrigerated equipment with heavy insulation	***RRA***
Class – B refrigerated equipment with heavy insulation	***RRB***
Class – C refrigerated equipment with heavy insulation	***RRC***
Class – D refrigerated equipment with normal insulation	

RND

Class – D refrigerated equipment with heavy insulation RRD

Class–A mechanically refrigerated equipment with normal insulation FNA

Class – A mechanically refrigerated equipment with heavy insulation FRA

Class – B mechanically refrigerated equipment with heavy insulation FRB

Class – C mechanically refrigerated equipment with heavy insulation FRC

Class – D mechanically refrigerated equipment with normal insulation FND

Class – D mechanically refrigerated equipment with heavy insulation FRD

Class – E mechanically refrigerated equipment with heavy insulation FRE

Class – F mechanically refrigerated equipment with heavy insulation FRF

Class – A heated equipment with normal insulation CNA

Class – A heated equipment with heavy insulation RA

Class – B heated equipment with heavy insulation CRB

If the equipment is fitted with a removable or non independent thermal appliance and if special conditions exist for the use of

the thermal appliance the distinguishing mark or marks shall be supplemented by the letter X in the following cases.

A. FOR REFRIGERATED EQUIPMENT

Where the eutectic plates have to be placed in another chamber for freezing.

B. FOR MECHANICALLY REFRIGERATED EQUIPMENT

B.1 Where the compressor is powered by the vehicle engine.

B.2 *Where the refrigeration unit itself or a part is removable which would prevent its functioning.*

9. MONITORING OF AIR TEMPERATURES FOR TRANSPORT OF PERISHABLE FOOD STUFF INCLUDING FRESH HORTICULTURE PRODUCE:

For this purpose, relevant provisions of the Agreement on the International Carriage of Perishable Food stuffs and on the Special Equipment to be used for such Carriage (ATP) bearing reference No.ECE/TRANS/219 and as amended on 2nd January, 2011 by Inland Transport Committee of Economic Commission for Europe, may be adopted as far as applicable.

10. PROCEDURE FOR THE SAMPLING AND MEASUREMENT OF TEMPERATURE FOR CARRIAGE OF PERISHABLE FOOD STUFF INCLUDING FRESH HORLTICULTURE PRODUCE :

For this purpose, relevant provisions of the Agreement on the International Carriage of Perishable Food stuffs and on the Special Equipment to be used for such Carriage (ATP) bearing reference No.ECE/TRANS/219 and as amended on 2nd January, 2011 by Inland Transport Committee of Economic Commission for Europe, may be adopted as far as applicable.

11. SAMPLING:

For this purpose, relevant provisions of the Agreement on the International Carriage of Perishable Food stuffs and on the Special Equipment to be used for such Carriage (ATP) bearing reference No.ECE/TRANS/219 and as amended on 2nd January, 2011 by Inland Transport Committee of Economic Commission for Europe, may be adopted as far as applicable

12. TEMPERATURE MEASUREMENT OF PERISHABLE FOOD STUFF INCLUDING FRESH HORTICULTURE PRODUCE:

For this purpose, relevant provisions of the Agreement on the International Carriage of Perishable Food stuffs and on the Special Equipment to be used for such Carriage (ATP) bearing reference No.ECE/TRANS/219 and as amended on 2nd January, 2011 by Inland Transport Committee of Economic Commission for Europe, may be adopted as far as applicable.

13. SELECTION OF EQUIPMENT AND TEMPERATURE CONDITIONS TO BE OBSERVED:

For this purpose, relevant provisions of the Agreement on the International Carriage of Perishable Food stuffs and on the Special Equipment to be used for such Carriage (ATP) bearing reference No.ECE/TRANS/219 and as amended on 2nd January, 2011 by Inland Transport Committee of Economic Commission for Europe, may be adopted. However as ATP does not cover complete range of fresh horticulture produce, critical storage condition prescribed by WFLO for fresh fruits and vegetables are recommended for adoption.

The temperature control of horticulture produce specified above should be such as not to cause freezing at any point of the load.

14. SOME DESIRABLE CONSTRUCTION FEATURES:

• **Body of Reefer Van** – The outside sheet can be made of GRP (Glass Reinforced Plastic Fiber) outside and PU foam in the core or, FRP (Fiber- Glass Reinforced Plywood) construction or, mild steel or the stainless steel.

• **Thermal Insulation for Walls and Celling** – 75 to 100 mm thick rigid polyurethane foam with density 42 kg/m^3 insulations in walls and ceiling incorporating a cam lock fixing system and silicone sealed tongue and groove point.

• **Thermal Insulation on Floor** – 100 mm thick panels, reinforced with 12 mm ply wood will be provided as insulation above the steel base.

• **Structure of Floor top**: It will be finished with 3 mm thick chequered aluminum tread plate floor and bottom with GI sheet. Floor should be non corrosion, non pollution, anti brine, acid, and soda resisting type.

• **Floor Drain** – Four Kazoo floor drains.

• **Door**: Double wing rear doors and one side delivery door will be provided with stainless steel container type locking system.

• **Front Wall** – Reinforced front wall for reefer unit

• **Interior** – Washable glass board interior

• **Plastic Curtains**: Plastic Curtains will be provided for the doors

• **Lights** : Vapor and frost proof

ANNEXURE –I

ENTERPRENEURS (PROMOTER'S) PROFILE

(To be filled in by the Office)

PHOTOGRAPH

1. Title of the Project
2. Project Code No.
3. Date of application submitted to DDH/ADH/AHO
4. M.R. No. & Date of purchase of Entry, Proof No…….Date
5. Date of submission of Entry Proof.
6. Date of District Horticulture Mission Approval
7. Project Cost (Rs. in lakhs)
8. Investment Ratio
(To be filled in by Entrepreneur/Applicant)

1. Name of the Entrepreneur/Applicant
2. Father's Name :
3. Permanent Address (With Postal Pin) & Telephone No.
4. Present Address (with Postal Pin) & Telephone No.
5. Date of Birth :
6. Caste : (General/SC/ST/OBC)
7. Name of the Organization
(if authorized a person to apply for,
please enclose the authorization letter in original)
8. Name of the Person heading the Organization and his full address postal pin with Telephone number.

9. a) **Identity proof of the applicant/entrepreneur for Individual applicant –**

(The Xerox copy should be attested by a Gazetted Officer not below the rank of SDM or Executive Magistrate –I.)

i) Voter I.D. Card ii) Pan Card iii) Electric Bill iv) Phone Bill

v) Educational qualification

b) Identity proof for organization (If applicant is an

organization) i) Income Tax Return (I.T.) returns of the

previous/current year. ii) Registration Certificate

iii) Additional Qualification (if any)

iv) Applicant (with designation)

v) Authorized person

c) Name & address of the Technical experts of the Organization to handle the project (with Telephone No. & Mobile No.)

c) Working Experience in the applied Project/Institution.

Name of the Institution/Project	Job description	Design	Period of Experience (From to	Responsibility Taken Capacity.	Annual turn over in Rs.
1	2	3	4	5	6

10. **Occupation Details Crop Produces**

a. Agril. Farming b. Agro Industries c. Agri Business d.Others

11. Details of Property hold (Promoters own & Family) in case

Individual applicant. a) Type of Property details of ownership

b) Type of Acquisition c) Year of acquisition

d) Present Market Value (in Rs.)

e) Land ownership documents to be submitted along with application form. Documents downloaded from bhulekh Orissa.in site and attested by concerned Tahasildar or SDM.

12. In case applicant is an organization:

a) Type of Property details with Ownership

b) Acquisition details

c) Years of Acquisition

d) Present Market Value (in Rs.)

e) Land ownership documents to be submitted along with application form. Documents downloaded from bhulekh Orissa.in site and attested by concerned Tahasildar

f) Source of Income:

g) Annual Income (in Rs.)

13. Details of Loan/grant/Advances obtained earlier a)

If applicant is an Individual:-

Name of the Loanee	Relationship with applicant	Purpose of Loa/Grant/ advance	Name of the Financial Institution financed.	Amount of loan/grant Adv. received (in Rs.)	Date of Receipt	Balance loan/grant/adv to be received in Rs.	Present status of the Project
1	2	3	4	5	6	7	8

b) If applicant is an Organization

Name of the Project for which loan/grant/adv. Received	Fin. Inst. Financed	Amount received (in Rs.)	Period of Receipt	Amount utilized in Rs.)	Present status of the Project
1	2	3	4	5	6

c) Details of the contribution to the proposed project expenditure

Particulars of Contribution	Amount % Period of contribution	Contribution for the component of the proposed project
1	2	3

a) Self
b) Bank Loan
c) Equity Share
d) Subsidy

14. <u>Details of the Proposed Project</u>

a) Proposed Location (with road map):

b) Layout plan of the plant/machinery

c) Area of Operation:-

d) Cost of the Project (in Rs.)

i) Working Capital:-

ii) Fixed assets valuation (in Rs.)

e) Annual Profit assessed (in Rs.)

f) Detail Project Report (DPR) Prepared by
(Name address & Telephone No.)

DPR should contain detailed P/E of Civil Construction, cost of plant / machinery with supporting quotation).

g) D.P.R. accepting Bank
(Please enclose the DPR acceptance letter & consent letter of Fin. Inst. to Finance the Project).

g) Brief note on motto/objective of your proposed Project
(Use separate Sheet if required)

h) Original copy of M.R. (Money Receipt) in support of purchase of application.

I do undertake that above information's furnished are true so far my knowledge is concerned.

Place:

Date:

Signature of Applicant/Entrepreneur (With Name,

CHECK LIST (Submitted documents may be furnished by applicant / entrepreneur)

List of documents enclosed in support of Applicant's (Entrepreneur) credential to set up the ……..unit attached with application.

1.

2.

3.

Signature of applicant/entrepreneur
(with Name, Phone No. & Seal)

Application receipt

(To be furnished by State Horticulture Mission)

The application along with the above mentioned documents were received

From……on……

Dated……for the Project……..……..……

Amounting …….

Place
Date :

Signature of Receiving Officer
(With Name, Telephone No. & Seal)

Annexure – II

The proposal by private entrepreneurs, Public Sector undertakings, Coop Societies etc. shall be submitted after sanction of credit facilities by the Financial Institutions as per format.

Format for Submission of Project based Proposals (PHM) by Private Sector under NHM

1. Name of Project :
2. Type of Activity :
3. Objectives :
4. Location of the Project with Address :
   - General Area
   - Hilly/Tribal Area

5. Constitutions

(Date of incorporation and relevant law along with a copy of articles and memorandum of associations, by laws, partnership deed and registration certificate whichever is applicable. Documentary proof regarding authorized / paid up capital and promoters contributions).

i. Public Ltd Company ii. Private Ltd Company iii. Registered Society iv. Association v. Federation vi. Producer Company vii. Proprietorship firm viii. Partnership concern

6. Management

7. Brief back ground of promoters.

8. Cost of Project (Rs. in lakhs)

i. Land – (If purchased new along with documentary proof)
ii. Building
iii. Plant & Machinery
iv. Contingencies
v. Miscellaneous fixed assets
vi. Working Capital margin
vii. Pre operative exp.

Total:

9. Means of Finance

i. Promoter Share
ii. Bank Term Loan
iii. Subsidy
iv. Quasi equity
v. Unsecured loan

Total:

10. Details of Cost of Plan & Machinery/equipment supported by quotations.

11. Details of the Building construction and the cost duly certified.

12. Area of Operation with special reference to National Horticulture Mission (NHM) Districts to be covered.

13. Availability of raw material, name of the cluster and district along with the major crops.

14. Back ward linkages with farmers with reference to either providing services or purchase of raw materials

15. Forward linkages – Analysis of domestic and export markets, tie up made for sale of Produce and branding aspect.

16. No. of farmers/orchardist to be benefited.

17. SWOT Analysis

18. Financial Analysis – IRR, NPW, Cost benefit Ratio, Break even point, DER, DSER, Projected balance sheet etc.

19. Insurance of the fixed assets.

20. Certificate from Pollution Control Department

21. Name of the sponsoring bank along with the details of Techno economical appraisal reports, copy of sanction letter and Detailed Project Report (DPR) as submitted to bank.

22. Certificate regarding Non-availing of subsidy from any other Central/State Govt. Department.

23. Social benefits with special reference to employment generation.

a) Direct employment

b) Indirect employment

c) Women ST/SC employment.

24. Details of the sustainability of the project with special reference to its capacity to generate income since only one time grant is admissible.

25. Implementation schedule

26. Amount of subsidy sought.

27. In case of refer vans and containers following documents needs to be attached and verified by State Horticulture Mission (SHM) through Branch Managers.

a) Copy of proforma invoice of chassis, body and refrigeration units of the vehicles duly confirmed by the lending bank.

b) Copy of the payment receipts of chassis, body and refrigeration unit etc. of the vehicles duly confirmed by the lending bank.

c) Copy of the delivery challans of the body and chassis of the vehicles.

d) Notarized affidavit for utilization of the vehicles.

Place:

Date:

Signature of Applicant/Entrepreneur
(With Name & Seal)

Capacity of Cold Storage would be calculated on the basis of 3.4 cubic metres per tonne or 120 cubic feet per tonne.

The value of land to be computed in the project cost should not exceed 10% of the cost of Project, such value to the extent 10% of the total cost should only be computed in the project cost. The cost of land computed in the project cost is to be reckoned towards the margin money required to be met by the enterprise. The cost of the land will be computed in the project cost only when the land is to be purchased by the entrepreneur. The cost of the land should be the purchase value and not the market value. The value of only that portion of the land which is need based for the project is to be included. Cold Storages may be treated as infrastructure for financing. While formulating the proposal emphasis shall be laid on the following points.

- Reducing PHM losses with Multi-chamber (at least two chambers) and Multi –Product facilities.

- Adopting Modern Designs / Technology and Energy Saving Equipments / Devices to avoid obsolescence of Machinery etc.

- Making improvement in technology like shifting from Diffuser System to Gravity Cooling System / Fincoil System etc

Annexure – III

LIST OF SUPPLIERS OF COOL CHAIN EQUIPMENTS

1-Blue star limited Corporate office Kasturi Building, Mohan T Advani chowk Jamshadji Tata Road, Mumbai-400010 Tel-91(22)66654000 Regional Head quarter 7,Hare street Kolkota,Tel no-91(33)22134000	**7.** Nilkamal limited Nilakamal House, Street No. – 14, M.I.D.C., Andheri (East), Mumbai – 400093 TI-022-26818888 Local Office Block C-2nd Floor, Gitanjali Complex Nr. – Rajarani petrol pump, lewis road, Bhubaneswar – 751002
2-Carrier Air conditioning & Refrigeration limited **Head office** Jalpur Highway, Harsingpur, Gurgaon Haryana-122001,India Tel-91-124-4825500	**8.** Moder Refrigeration & Engineering. Co. 63-Budha Nagar, Kalpana Square Bhubaneswar Tel - 943814375
3-Voltas House-B 3rd floor, T.B Kadam Marg Chinchpokes (East) Mumbai-400033	**9.** Motherson Zanoti Refrigeration System Ltd. A-79, Sector– 2, Noida, G.B. Nagar, Uttarpradesh–201301,Tel-91-120-4358565
4-RINAC India Limited No-Main channel Road, Ulsoor, Bangalore, Karnatak-560008,Tel-91-80-41132929 **Local office** Cold chain solution, 17/2 Ist floor, Janapath, Bapuji Nagar, Bhubaneswar	**10.** Cold Chain Solution, Janpath, 1st floor 17/2 Bapuji Nagar-751009, Odisha Tel: +91-9437298855
5-ACME cold chain solution pvt.limited 9th floor, DLF infinity Tower-C DLF Cyber café, Phase-2,Gurgaon-122002	**11.** T.Krishna Patra, Grand Road, Puri, 752001-Odisha Tel: 06752-222143
6. Frick India limited 809, Surya Kiran, 19 KG Marg, New Delhi	12. Rupesh Still, Nabakalebara Road, Puri - 752001,Odisha

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ANNEXURE-IV

CHECK LIST FOR COLD STORAGE PROJECT

A) General Information	
1	Name ,location and office address of the cold storage unit
2	Project background, area of operations (no. of blocks proposed to be covered and / or city / market targeted)
3	Population of the area, crops being grown, land holding pattern, area under irrigation.
4	Production of storage commodity in the area .
5	Demand of the commodity in the area.
6	Names of the financing bank(s) / branch (es) and whether the scheme is in their service area.
7	Approval of the scheme/constructions from the competent authority
B) The Project	
1	Objectives of the project
2	Capacity of the project and justification thereof
C) Promoters	
1	Status of the promoters/ company - whether individual/ society/ partnership firm / private limited company/ public limited company
2	Background of the promoters - educational/ technical/ agricultural/ business and length of experience
3	Financial health of the promoter/s(to be supported with the documents)
4	Competence of the promoter/s for the project
5	Other activities being taken up/ planned
D) Technical Aspects	
i) Availability of commodity	
1	Commodity proposed to be stored
2	Area under the commodity for past five years in the area of operation and production thereof / demand of the product in the target market
3	Projections of the production - consumption figures for next nine years
4	Number of existing cold storage units in the area of operation and their installed capacities.
5	Capacity utilization achieved by the existing units in previous three years and their financial health
6	Proposed pattern of capacity utilization i.e., for self , farmers and traders
7	Contract condition of storage of the proposed commodity with farmers and traders

8	If there is a scope of incorporating an ice plant in the unit , the capacity requirement and details of the unit
ii) Capacity and Location	
1	Locational advantage of the unit
2	Distance from the main market for the commodity
3	Location of the nearest cold storage from the proposed site & its capacity.
4	Details about the site - Area of the plot/ Site plan indicating the existing metalled roads and the natural drainage
5	Copy of the land records clearly indicating the title and cost
6	Distance from the nearest Railway station and existing metallic road
7	Availability and suitability of water for the activity
8	Water test report indicating the hardness of the water
9	Availability of electricity at the site/ Distance from the existing HT line
10	Other communication facilities available near the site
11	Any other consideration for selection of proposed site
12	Status of site regarding use of land for non agricultural purposes
13	Whether clearance has been obtained from Pollution Control Board / competent authorities for constructions, power connection.
iii) Civil Structures	
1	Items proposed under site development and their detailed specifications (storm water drainage systems , roads , boundary walls , quantum of earthwork , gates etc.)
2	Soil test report for load bearing capacity of the soil
3	Details of building clearly indicating the size of each building(L/B/H) and justification for the size
4	Layout plan for the proposed structures indicating existing structures, if any
5	Ambient temperature conditions and Provisions for insulation of the structures – the insulation material, thickness of the insulation for different walls (side walls, roof and floor), area and cost of insulation.
6	Design details of racks proposed
7	Provisions proposed for loading/ unloading of proposed commodity in cold storage
8	Arrangements proposed for drying/ sorting/ grading of the commodity before/ after storage and its justification
9	Analysis of the rates considered for preparing the estimates vis-à-vis rates as per SOR for the area and base year of the SOR
10	Any other relevant information
iv) Plant and Machinery and Utilities	

1	Type of cold storage technology and justification
2	Tonnage of refrigeration proposed and heat load calculations for the proposed capacity
3	Details of the machines proposed to be procured including their technical specifications and power requirement
4	Criteria adopted for selection of the proposed machinery
5	Stand-by items proposed under machinery and their justification
6	Source of the machinery
7	Total power requirement and arrangement for the same
8	List of essential loads to be connected to the stand-by power arrangement
9	Details of water requirement and proposed source of water
10	Details of the well, pumpset, over head tank and piping works
E) Marketing	
1	Arrangement for procurement of the commodity for storage forward and backward linkages
2	Services proposed to be offered by the unit.
3	Utilization plan of the unit for proposed services
4	Existing rates for different services and their trend for last five years
5	Capacity utilization proposed and justification for the same
F) Organizational Setup	
1	Organization Structure , details of manpower requirement and salary structure
2	Availability of technical manpower
3	Availability of skilled and unskilled labours
G) Financial Information	
(i) Project Outlay	
1	item wise cost proposed under site development and their quantity of work analysis
2	Item wise cost proposed under Civil structures and their quantity of work analysis
3	Item wise details of the cost of machinery with supporting quotations / literature etc.
4	Cost of miscellaneous equipments including office equipments, communication system fire fighting equipment etc.
5	Cost proposed under electrification and item wise cost breakups
6	Cost proposed for stand-by power arrangement
7	Cost proposed for water supply systems such as construction of well / digging of tubewell , installation of pumpset, construction of overhead tank and piping works

8	Any other arrangement / cost proposed may be described with proper details
9	Cost of Erection and Commissioning
(ii)	Means of Finance :
1	Total Outlay
2	Margin Money
3	Loan Requirement
(iii)	Lending terms : Rate of interest, grace period, repayment period, down payment, nature of security, availability of government guarantee for bank loan/ refinance, sources and extent of availability of subsidy etc.
(iv)	Proposed schedule of implementation .Year wise physical and financial programme, bank loan refinance requirement.
(v)	Estimates of unit wise aggregate income, expenditure and surplus from the cold storage, comments on the financial viability of the project along with cash flow, B/C ratio, net present worth, financial rate of return , Internal rate of return and Debt Service Coverage Ratio
(vi)	Assumptions made for calculating income and expenditure statement
(vii)	Income and Expenditure Statement for next nine years
(viii)	Sensitivity Analysis
(ix)	Socio-economic benefits including employment generation and benefits to farmers
(x)	Comments on the financial position of the borrowers/ implementing agency. In case of companies, partnership firm or society an analysis of their financial position and audited financial statements for last three years
(xi)	Infrastructure available for project implementation
(xii)	SWOT Analysis
(xiii)	Conclusions and recommendations

ANNEXURE-V

VERIFICATION OF SITES FOR STUDY OF ITS FEASIBILITY IN ESTABLISHING UNIT UNDER POST HARVEST MANAGEMENT PROGRAMME

1. Name of the applicant—
2. Address--
3. Address of the site for establishment of----
4. Land record:-whether in the name of the applicant--

(a) Original patta to be verified--

(b) Sketch map of the site whether duly signed by R.I tailed with patta, Khata No, plot etc.

(c) If joint property-NOC of the share holder of the said land sworn before the executive Magistrate

5. Whether the proposed site is easily accessed to electricity---
6. Water source –whether permanent and adequate water source available—
7. land sources-Whether the Applicant has own cultivable land or not if yes how much lands are in cultivation and what type of crops (Area wise) are taken for cultivation and annual return from the produces-

(In case of cashew processing units, area under cashew crops should be mentioned)

8. Annual return of the project with expected revenue to be collected from cold store,pre cooling unit/cooling chamber, ripening chamber-(data sheet attached)
9. Whether the site is suitable for efficient functioning of the project--
10. Financial back ground of the applicant--
11. Whether the applicant has willingness for back ended subsidy /own fund-
12. Educational qualification-Whether falls in the preference category or any other category--
13. Any other to be decided by the expert team--
14. Signature of the applicant--
15. Remarks on feasibility—

AHO AAE ADH DDH

ANNEXURE-VI

AGREEMENT

THIS INDENTURE/AGREEMENT made on this---------day of two thousand twelve------between an Individual/a body of Individuals/a co-operative/ a registered Organisation/a company incorporated under the company act,having its office /Residence/Address at----------hereinafter called"The Agro-Entrepreneur"(which expression shall unless it be repugnant to the context or meaning thereof, be deemed to include its successor or successors etc.) as the first party.

And the Odisha Horticulture Development Society exercising the executive powers of the Government of the state(hereinafter refer to as "the Governor" as the second party

WHEREAS:

(a) The Government of India has framed Post Harvest Management scheme under National Horticulture Programme with a view to promote agricultural production and productivity stating therein that Government of Odisha will grant a subsidy to the parties who set up new Agro-Enterprises in any of the districts of the state provided aid party(s) satisfy the terms and conditions laid down under the said rule which shall be deemed to be a part of this agreement.

(b) The Horticulture Development Society (herein after referred to as "OHDS,SHM) act as the authority for the disbursement of the subsidy.

(c) The Beneficiary/Entrepreneur have setup a Agro-enterprise at---------- on Plot No----------Khata No.----------,Measurement of area---------- Mouza----------,GP---------- P.S----------,Block---------- Sub-Division--------Dist----------Standing in the name of sri/smt/M/s---------- and have satisfied other conditions of the Integrated Post Harvest Management scheme under NHM and have, therefore, become beneficiaries under the said scheme.

(d) The Beneficiary/Entrepreneur(s) by his/her/their application in prescribed proforma dated----------2012 applied to the OHDS for the grant of stipulated subsidy as per the norm amounting to Rs----------(in words Rupees ----------) and WHEREAS:

(e) After considering the above application and the further representations made by the Beneficiary/Entrepreneur from time to time ,it is found that the total fixed capital investment made by the unit at----------Estimated at Rs----------Accordingly ,the maximum amount of stipulated subsidy admissible is Rs----------(In words----------)only and

(f) Relying on the said application and subsequent representations made by the Beneficiary/Entrepreneur, the NHM/SHM have sanctioned subsidy of Rs----------and OHDS has agreed to pay the same to the Beneficiary/Entrepreneur on their executing the necessary documents as hereafter appearing and creating the fixed assets to the term of Rs----------.

NOW THIS INDENTURE WITNESSETH AND it is hereto as under:

1. In consideration of the SHM,OHDS agreeing to give to the agro-entrepreneurs under the said scheme. In such scheme the SHM,OHDS in its sole discretion think fit, an aggregate amount of Rs---------and by way of the subsidy to the Beneficiary/Entrepreneur creating the fixed assets of Rs----------for the purpose of the said unit and the Beneficiary/Entrepreneur do and each of them do hereby covenant with the SHM,OHDS as under:

2. In the event of the State Level Committee, District Level committee ultimately deciding for any reason whatsoever, that the Beneficiary/Entrepreneur are entitled to get subsidy as per the norms of NHM.

a) If the entrepreneurs close the ,said project for a period exceeding six months at a time for reasons other than labour trouble,, want of electric power or raw materials or shall cease to carry on agricultural business for any reason whatsoever within ten years from the date or trial production/completion of the enterprise.

b) If the entrepreneurs or any of them file a petition for being adjudicated as insolvent or are/is adjudicated as insolvent.

c) If any petition for winding up the entrepreneur's agricultural enterprise is presented to any Court or the enterprise passes any resolution for being. wound up.

d) If the agro-entrepreneurs fail or neglect to forthwith execute such further documents as may be required by the Government or to duly comply with any directions given to it by the Government. In each one of the aforesaid contingencies the entrepreneur (s) agree to repay the whole amount mentioned above with interest thereon as the Government might define from time to time from the date of disbursement of the subsidy till the repayment.

2. Whenever any sum due and payable by the agro-entrepreneur (s) under these present shall be in arrears, the same shall be deemed to be public demand and may without prejudice to any other right and the remedies of the Government be recovered from the entrepreneur (s) as a public demand under the Orissa Public Demand Recovery Act, 1962.

3. The Agro-Entrepreneur (s) shall permit any person or persons authorized by the Government in that behalf at any time and from time to time during the usual time of the agricultural business to inspect and examine any part of the said entrepreneur (s) and shall render to him/them such assistance as may be required for the Government and furnish to such person or persons as aforesaid all such . information relating to the said enterprise/factory as may be required by such person or persons.

4. The Agro-Entrepreneur (s) shall observe and perform all instructions and directions that may be issued from time to time by the Government in relation to utilisation of the said sum of Rs------- and shall for ten years hereinafter submit yearly/periodical progress reports on the working of the said enterprise.

5. In the event of any dispute or .difference arising between the parties hereto In respect of or In relation to this agreement or any provision herein contained either during the subsistence of this agreement or thereafter the same shall be referred to the sole Arbitration of a suitable person acceptable to the agro- entrepreneur (s) as well as to the Government or any other person nominated by Government and his decision thereof shall be final and binding on the: parties, such arbitration . shall be under the provision of the Arbitration Act, 1940..

.

6. The Agro-Entrepreneur (s) agree that in respect of any Court/ Arbitration arising under this agreement shall be considered at local district court.

7. In the event of any action arising under any of the clauses herein above the agro-entrepreneur (s) agree to pay to the Government legal charges.

8. The Agro-Entrepreneur (s) agree to bear and pay all the costs/ charges and the expenses incidental to the preparation and execution of this agreement.

IN WITNESS WHEREOF parties hereto have affixed their common seal of this writing the day and year first here in above written.

THE COMMON SEAL is herein to affix pursuant to the resolution passed on the day of in the presence of who/has/have put his/their signature IN TOKEN OF HIS/THEIR PRESENCE in the presence of

IN THE WITNESS where of the entrepreneur (s) have put their (respective) hand hereto day and year herein above written.

Signed and delivered by the .,

With in named in the presence of

1)

2)

Signature of officer acting in the premises for and on bahalf of the

Governor of Orissa in the presence of

1)

2)

Signature (full name)

for and on behalf of the Government

Date----------place--------

ANNEXTURE-VII

CHECK LIST FOR PROJECTS UNDER POST HARVEST MANAGEMENT

A) General Information	
1	Name, location and office address of the project
2	Project background, area of operations (no. of blocks proposed to be covered and/ or city / market targeted)
3	Population of the area, crops being grown, land holding pattern, area under irrigation.
4	Production data
5	Demand of the commodity in the area.
6	Names of the financing bank(s) / branch(es) and whether the scheme is in their service area.
7	Provision in the scheme
B) The Project	
1	Objectives of the project
2	Capacity of the project and justification thereof
C) Promoters	
1	Status of the promoters/ company - whether individual/ society/ partnership firm/ private limited company/ public limited company
2	Background of the promoters - educational/ technical/ agricultural/ business and length of experience
3	Financial health of the promoter/s (to be supported with the documents)
4	Competence of the promoter/s for the project
5	Other activities being taken up/ planned
D) Technical Aspects	
i) Availability of commodity	
1	Commodity proposed to be stored
2	Area under the commodity for past five years in the area of operation and production thereof / demand of the product in the target market
3	Projections of the production - consumption figures for next nine years
4	Number of existing units in the area of operation
5	Capacity utilization achieved by the existing units in previous three years and their financial health
6	Proposed pattern of capacity utilization i.e., for self , farmers and

	traders
7	Contract condition of storage of the proposed commodity with farmers and traders
FEASIBILITY	
1	Location advantage of the unit
2	Distance from the main market for the commodity
3	Location of the nearest cold storage from the proposed site & its capacity.
4	Details about the site - Area of the plot/ Site plan indicating the existing metalled roads and the natural drainage
5	Copy of the land records clearly indicating the title and cost
6	Distance from the nearest Railway station and existing metallic road
7	Availability and suitability of water for the activity
8	Water test report indicating the hardness of the water
9	Availability of electricity at the site/ Distance from the existing HT line
10	Other communication facilities available near the site
11	Any other consideration for selection of proposed site
12	Status of site regarding use of land for non agricultural purposes
iii) Civil Structures	
1	Items proposed under site development and their detailed specifications
2	Details of building clearly indicating the size of each building(L/B/H) and justification for the size
3	Layout plan for the proposed structures indicating existing structures, if any floor), area and cost of insulation.
4	Provisions proposed for loading/ unloading of proposed commodity in cold storage
5	Arrangements proposed for drying/ sorting/ grading of the commodity before/ after storage and its justification
6	Analysis of the rates considered for preparing the estimates vis-à-vis rates as per SOR for the area and base year of the SOR
7	Any other relevant information
iv) Plant and Machinery and Utilities	
1	Type of technology and justification
2	Details of the machines proposed to be procured including their technical specifications and power requirement
3	Criteria adopted for selection of the proposed machinery

4	Stand-by items proposed under machinery and their justification
5	Source of the machinery
6	Total power requirement and arrangement for the same
7	Details of water requirement and proposed source of water
v)Marketing	
1	Arrangement for procurement of the commodity for storage forward and backward linkages
2	Services proposed to be offered by the unit.
3	Utilization plan of the unit for proposed services
4	Existing rates for different services and their trend for last five years
5	Capacity utilization proposed and justification for the same
F) Organizational Setup	
1	Organization Structure , details of manpower requirement and salary structure
2	Availability of technical manpower
3	Availability of skilled and unskilled labours
G) Financial Information	
(i) Project Outlay	
1	item wise cost proposed under site development and their quantity of work analysis
2	Item wise cost proposed under Civil structures and their quantity of work analysis
3	Item wise details of the cost of machinery with supporting quotations / literature etc.
4	Cost of miscellaneous equipments including office equipments, communication system fire fighting equipment etc.
5	Cost proposed under electrification and item wise cost breakups
6	Cost proposed for stand-by power arrangement `
7	Cost proposed for water supply systems such as construction of well / digging of tube well , installation of pump set, construction of overhead tank and piping works
8	Any other arrangement / cost proposed may be described with proper details
9	Cost of Erection and Commissioning
(ii)	**Means of Finance :**
1	Total Outlay
2	Margin Money

3	Loan Requirement
(iii)	Lending terms: Rate of interest, grace period, repayment period, down payment,
	nature of security, availability of government guarantee for bank loan/ refinance,
	sources and extent of availability of subsidy etc.
(iv)	Proposed schedule of implementation .Year wise physical and financial programme, bank loan refinance requirement.
(v)	Estimates of unit wise aggregate income, expenditure and surplus from the cold storage, comments on the financial viability of the project along with cash flow, B/C ratio, net present worth, financial rate of return , Internal rate of return and Debt Service Coverage Ratio
(vi)	Assumptions made for calculating income and expenditure statement
(vii)	Income and Expenditure Statement for next nine years
(viii)	Sensitivity Analysis
(ix)	Socio-economic benefits including employment generation and benefits to farmers
(x)	Comments on the financial position of the borrowers/ implementing agency. In case of companies, partnership firm or society an analysis of their financial position and audited financial statements for last three years
(xi)	Infrastructure available for project implementation
(xii)	SWOT Analysis
(xiii)	Conclusions and recommendations

Annexure-viii

Application for Availing Assistance / Subsidy Under National Horticulture Mission /State Horticulture Mission

Name of the Scheme: Post Harvest Management

Attested copy
Of
Photograph
Of
Beneficiary

COMPONENT: PACK HOUSE

1. Name of the Farmer:
2. Father / Husband Name:
3. Caste (SC/ST/BC/OC) :
4. Addresses

   Phone / Cell No. :
5. Land records with Extent in Acres / Ha (Details of production)
   (Copy of Pass Book)
6. Source of Irrigation (Open well / Bore well / Canal):
7. Name of the Financing Bank:
   (Loan Amount Proposed)
8. Whether any Govt. Subsidy availed previously:
9. Any other relevant information:

Declaration

I/we declare that the particulars furnished above are true to the best of my knowledge and I promise that the benefit obtained from State Horticulture Mission will be used for the purpose for which it is given and in case of misuse I am liable for any action deemed to be fit by Govt. of Odisha including recovery of the subsidy amount with 12% interest to the Government.

Signature of the beneficiary

Annexure-ix

RIPENING CHAMBER

1) Name of the firm:

Proprietor / Partnership:

Name & Address:

Phone Nos. :

2) Land (own/lease) purchased / inherited:

If purchased for this purpose, sale deed: If only the land cost included in

Title deed :

The project cost

Area (sq.mt):

Cost of land:

3) Shed (own/lease):

Dimensions of the structure: If the shed cost is

If shed constructed: Plan, included in the project

Valuation by Engineer:

Leased period, Lease deed

(Registered or not) :

4) Refrigeration unit:

Company:

Code:

Capacity:

5) Commodity used:

No of chambers:

Internal dimension of the chambers (**L.B.H in feet)** :

Thickness of Puf panel:

No. of Puf panels :

Size of each panel :

Density of Puf :

6) Insulation (sft.)

a. PUF panels side & top

i . Thickness of Puf panel :

ii . No. of Puf panels :

iii . Size of each panel :

iv. Density of Puf

b) Polystyrene Panels

c) Thermo / Glass Wool etc.

7) Floor insulation details (dimensions) :

8) Door

i . Hinged Door

ii . Sliding Door

iii . Electric Operated Top sliding Door

9) Refrigeration

i . Direct Cooling – Freon Systems (Nos.)

ii . Direct Cooling – Ammonia Systems (Nos.)

iii . Water Spray – Air Cooled Systems (Nos.)

10) Compressor: _____ HP

11) Condenser motor: _____ HP, _____ RPM, _____ Nos

12) Evaporator farm motor : _____ W, _____ RPM, _____Nos

Power supply: _____ V, _____ PH, _____ HZ

Total power consumption : _____ Kw.

Power consumption / batch

(4 or 5 days) : _____ Kwh

Power costs / kwh. :

No of batches / year :

Wt of bananas per batch :

Cost of procurement of banana per Ton :

Sale price of banana per ton :

13) Humidifier cost & Make (Indian or Foreign) & Nos. :

i . Humidifier

ii . Air Cooled Systems

14) Method of Ripening followed :

- Ethylene Gas Generator

- Ethylene Gas Injection System

- Gassing method

- others

15) Control devices

a) Ethylene concentration :

b) Temperature

c) Relative humidity95

16) Bills (certified)

Refrigeration unit :

Puf Panels:

Control devices (temp, RH etc.):

Humidifier:

Ethylene generator:

Others

17) No. of crates / chamber:

Dimensions of the crates (ft):

Weight of bananas per crate :

18) Pallets (Nos.)

19) Trolley (Nos.)

20) Deposits for Electricity etc.

21) Preoperative expenses

22) Working capital

23) Any other (pl. specify) :

a) Copies of bills / vouchers / invoices / receipts – counter signed by Banker.

b) Valuation report from Engineer.

c) Completion certificate from C.A. / Banker.

d) Bank sanction letter with appraisal report.

e) Loan disbursement details. / Statement of account, (Acct.No)

Annexure-x

Recommended storage temperatures

Recommended Temperature and Relative Humidity, and Approximate Transit and Storage life for Fruits and Vegetable Crops (see Hardenburg et al, 1986 for more complete information on individual crops).

Product	Temperature		Relative Humidity (percent)	Approximate storage life
	°C	°F		
Amaranth	0-2	32-36	95-100	10-14 days
Anise	0-2	32-36	90-95	2-3 weeks
Apples	-1-4	30-40	90-95	1-12 months
Apricots	-0.5-0	31-32	90-95	1-3 weeks
Artichokes, globe	0	32	95-100	2-3 weeks
Asian pear	1	34	90-95	5-6 months
Asparagus	0-2	32-35	95-100	2-3 weeks
Atemoya	13	55	85-90	4-6 weeks
Avocados, Fuerte, Hass	7	45	85-90	2 weeks
Avocados, Lula, Booth-1	4	40	90-95	4-8 weeks
Avocados, Fuchs, Pollock	13	55	85-90	2 weeks
Babaco	7	45	85-90	1-3 weeks
Bananas, green	13-14	56-58	90-95	14 weeks
Barbados cherry	0	32	85-90	7-8 weeks
Bean sprouts	0	32	95-100	7-9 days
Beans, dry	4-10	40-50	40-50	6-10 months
Beans, green or snap	4-7	4045	95	7-10 days
Beans, lima, in pods	5-6	4143	95	5 days
Beets, bunched	0	32	98-100	10-14 days
Beets, topped	0	32	98-100	4-6 months
Belgian endive	2-3	36-38	95-98	24 weeks
Bitter melon	12-13	53-55	85-90	2-3 weeks
Black sapote	13-15	55-60	85-90	2-3 weeks
Blackberries	-0.5-0	31-32	90-95	2-3 days
Blood orange	4-7	4044	90-95	3-8 weeks
Blueberries	-0.5-0	31-32	90-95	2 weeks
Bok choy	0	32	95-100	3 weeks
Boniato	13-15	55-60	85-90	4-5 months

Breadfruit	13-15	55-60	85-90	2-6 weeks
Broccoli	0	32	95-100	10-14 days
Brussels sprouts	0	32	95-100	3-5 weeks
Cabbage, early	0	32	98-100	3-6 weeks
Cabbage, late	0	32	98-100	5-6 months
Cactus Leaves	24	3640	90-95	3 weeks
Cactus Pear	24	36-40	90-95	3 weeks
Caimito	3	38	90	3 weeks
Calabaza	10-13	50-55	50-70	2-3 months
Calamondin	9-10	48-50	90	2 weeks
Canistel	13-15	55-60	85-90	3 weeks
Cantaloups (3/4-slip)	2-5	36-41	95	15 days
Cantaloups (full-slip)	0-2	32-36	95	5-14 days
Carambola	9-10	48-50	85-90	3-4 weeks
Carrots, bunched	0	32	95-100	2 weeks
Carrots, mature	0	32	98-100	7-9 months
Carrots, immature	0	32	98-100	4-6 weeks
Cashew apple	0-2	32-36	85-90	5 weeks
Cauliflower	0	32	95-98	34 weeks
Celeriac	0	32	97-99	6-8 months
Celery	0	32	98-100	2-3 months
Chard	0	32	95-100	10-14 days
Chayote squash	7	45	85-90	4-6 weeks
Cherimoya	13	55	90-95	2-4 weeks
Cherries, sour	0	32	90-95	3-7 days
Cherries, sweet	-1 to -0.5	30-31	90-95	2-3 weeks
Chinese broccoli	0	32	95-100	10-14 days
Chinese cabbage	0	32	95-100	2-3 months
Chinese long bean	4-7	40-45	90-95	7-10 days
Clementine	4	40	90-95	24 weeks
Coconuts	0-1.5	32-35	80-85	1-2 months
Collards	0	32	95-100	10-14 days
Corn, sweet	0	32	95-98	5-8 days
Cranberries	2-4	36-40	90-95	24 months
Cucumbers	10-13	50-55	95	10-14 days
Currants	-0.5-0	31-32	90-95	1-4 weeks
Custard apples	5-7	41-45	85-90	4-6 weeks

Daikon	0-1	32-34	95-100	4 months
Dates	-18 or 0	0 or 32	75	6-12 months
Dewberries	-0.5-0	31-32	90-95	2-3 days
Durian	4-6	39-42	85-90	6-8 weeks
Eggplants	12	54	90-95	1 week
Elderberries	-0.5-0	31-32	90-95	1-2 weeks
Endive and escarole	0	32	95-100	2-3 weeks
Feijoa	5-10	41-50	90	2-3 weeks
Figs fresh	-0.5-0	31-32	85-90	7-10 days
Garlic	0	32	65-70	6-7 months
Ginger root	13	55	65	6 months
Gooseberries	-0.5-0	31-32	90-95	34 weeks
Granadilla	10	50	85-90	3-4 weeks
Grapefruit, Calif. & Ariz.	14-15	58-60	85-90	6-8 weeks
Grapefruit, Fla. & Texas	10-15	50-60	85-90	6-8 weeks
Grapes, Vinifera	-1 to -0.5	30-31	90-95	1-6 months
Grapes, American	-0.5-0	31-32	85	2-8 weeks
Greens, leafy	0	32	95-100	10-14 days
Guavas	5-10	41-50	90	2-3 weeks
Haricot vert	4-7	4045	95	7-10 days
Horseradish	-1-0	30-32	98-100	10-12 months
Jaboticaba	13-15	55-60	90-95	2-3 days
Jackfruit	13	55	85-90	2-6 weeks
Jaffa orange	8-10	46-50	85-90	8-12 weeks
Japanese eggplant	8-12	46-54	90-95	1 week
Jerusalem Artichoke	-0.5-0	31-32	90-95	+5 months
Jicama	13-18	55-65	65-70	1-2 months
Kale	0	32	95-100	2-3 weeks
Kiwano	10-15	50-60	90	6 months
Kiwifruit	0	32	90-95	3-5 months
Kohlrabi	0	32	98-100	2-3 months
Kumquats	4	40	90-95	2-4 weeks
Langsat	11-14	52-58	85-90	2 weeks
Leeks	0	32	95-100	2-3 months
Lemons	10-13	50-55	85-90	1-6 months
Lettuce	0	32	98-100	2-3 weeks
Limes	9-10	48-50	85-90	6-8 weeks

Lo bok	0-1.5	32-35	95-100	24 months
Loganberries	-0.5-0	31-32	90-95	2-3 days
Longan	1.5	35	90-95	3-5 weeks
Loquats	0	32	90	3 weeks
Lychees	1.5	35	90-95	3-5 weeks
Malanga	7	45	70-80	3 months
Mamey	13-15	55-60	90-95	2-6 weeks
Mangoes	13	55	85-90	2-3 weeks
Mangosteen	13	55	85-90	2-4 weeks
Melons:				
Casaba	10	50	90-95	3 weeks
Crenshaw	7	45	90-95	2 weeks
Honeydew	7	45	90-95	3 weeks
Persian	7	45	90-95	2 weeks
Mushrooms	0	32	95	34 days
Nectarines	-0.5-0	31-32	90-95	2-4 weeks
Okra	7-10	45-50	90-95	7-10 days
Olives, fresh	5-10	41-50	85-90	+6 weeks
Onions, green	0	32	95-100	34 weeks
Onions, dry	0	32	65-70	1-8 months
Onion sets	0	32	65-70	6-8 months
Oranges, Calif. & Ariz.	3-9	3848	85-90	3-8 weeks
Oranges, Fla. & Texas	0-1	32-34	85-90	8-12 weeks
Papayas	7-13	45-55	85-90	1-3 weeks
Passionfruit	7-10	45-50	85-90	3-5 weeks
Parsley	0	32	95-100	2-2.5 months
Parsnips	0	32	95-100	+6 months
Peaches	-0.5-0	31-32	90-95	2-4 weeks
Pears	-1.5 to -0.5	29-31	90-95	2-7 months
Peas, green	0	32	95-98	1-2 weeks
Peas, southern	+5	4041	95	6-8 days
Pepino	4	40	85-90	1 month
Peppers, Chili (dry)	0-10	32-50	60-70	6 months
Peppers, sweet	7-13	45-55	90-95	2-3 weeks
Persimmons, Japanese	-1	30	90	34 months
Pineapples	7-13	45-55	85-90	24 weeks
Plantain	13-14	55-58	90-95	1-5 weeks

Plums and prunes	-0.5-0	31-32	90-95	2-5 weeks
Pomegranates	5	41	90-95	2-3 months
Potatoes, early crop	10-16	50-60	90-95	10-14 days
Potatoes, late crop	4.5-13	40-55	90-95	5-10 months
Pummelo	7-9	4548	85-90	12 weeks
Pumpkins	10-13	50-55	50-70	2-3 months
Quinces	-0.5-0	31-32	90	2-3 months
Raddichio	0-1	32-34	95-100	2-3 weeks
Radishes, spring	0	32	95-100	34 weeks
Radishes, winter	0	32	95-100	24 months
Rambutan	12	54	90-95	1-3 weeks
Raspberries	-0.5-0	31-32	90-95	2-3 days
Rhubarb	0	32	95-100	24 weeks
Rutabagas	0	32	98-100	+6 months
Salsify	0	32	95-98	2-4 months
Santol	7-9	45-48	85-90	3 weeks
Sapodilla	16-20	60-68	85-90	2-3 weeks
Scorzonera	0-1	32-34	95-98	6 months
Seedless cucumbers	10-13	50-55	85-90	10-14 days
Snow peas	0-1	32-34	90-95	1-2 weeks
Soursop	13	55	85-90	1-2 weeks
Spinach	0	32	95-100	10-14 days
Squashes, summer	5-10	41-50	95	1-2 weeks
Squashes, winter	10	50	50-70	2-3 months
Strawberries	0	32	90-95	5-7 days
Sugar apples	7	45	85-90	4 weeks
Sweetpotatoes	13-15	55-60	85-90	4-7 months
Tamarillos	3-4	37-40	85-95	10 weeks
Tamarinds	7	45	90-95	3-4 weeks
Tangerines, mandarins, and related citrus fruits	4	40	90-95	24 weeks
Taro root	7-10	45-50	85-90	4-5 months
Tomatillos	13-15	55-60	85-90	3 weeks
Tomatoes, mature-green	18-22	65-72	90-95	1-3 weeks
Tomatoes, firm-ripe	13-15	55-60	90-95	4-7 days
Turnips	0	32	95	4-5 months
Turnip greens	0	32	95-100	10-14 days
Ugli fruit	4	40	90-95	2-3 weeks

Waterchestnuts	0-2	32-36	98-100	1-2 months
Watercress	0	32	95-100	2-3 weeks
Watermelons	10-15	50-60	90	2-3 weeks
White sapote	19-21	67-70	85-90	2-3 weeks
White asparagus	0-2	32-36	95-100	2-3 weeks
Winged bean	10	50	90	4 weeks
Yams	16	61	70-80	6-7 months
Yucca root	0-5	32-41	85-90	1-2 months