Detailed Project Report (DPR) :Model template

for NHB Scheme No.1 for Aonla

Scheme.1	**Development of Commercial Horticulture through Production and Post-Harvest Management Horticultural crops** 1. Open field condition 2. Integrated Post Harvest Management

Crop			Tick mark
Scheme components	1.Open field condition of NHB specified crops	Within overall cost ceiling	
		+Farm Mechanisation	
		+Good Agri. Practices (GAP)	
		+Plastic Mulching	
	2.Integrated PHM		
	2.1. Integrated Pack House		
	2.2 Pack house		
	2.3. Pre-cooling unit		
	2.4. Cold Room (Staging)		
	2.5. Primary Processing		
	2.6. Refer Van		
	2.7. Retail outlet		

Submitted by

---------- Applicant with full correspondence address

Detailed Project Report (DPR) duly to be signed by
the applicant (s) / authorised person (in case of legal entity) on each page with date – along with Horticulture and Project Finance Expert wherever applicable

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Checklist of documents to be submitted at Market Viability and Financial Viability stage and during JIT.

Project at a Glance

1.	Applicant (s)/ Legal entity Name		
2.	Constitution / Applicant nature / beneficiary		
3.	NHB Scheme for which DPR is made		
4.	Project Activity		
5.	Nature of project- Green field/ pre-existing- expansion / component specific		
6.	Products, By-products and services		
7.	Land		
	1. Land ownership: Owned or on registered lease for minimum of 10 effective years from the date of IPA. In other words ideally one should have 11 Years of registered lease including a processing period of 1 Year from the time of application for Technical feasibility.		
	2. Project Area and Survey /khasra/ Gat/Dag No.		
	3. Project Site Address with Postal Code and Police Station Name		
8.	Technical feasibility		
	1. Agro-climatic suitability		
	2. Research institution whose technology and package of practices are proposed to be followed		
	3. Crop husbandry / PHM is based on evidence based R&D		
9.	Existence of similar project activity in the said District		
10.	Whether the project is located in the crop cluster/ hub/ belt		Yes/No
11.	Project economic period/ economic life		
12.	Total Project Cost of the proposal		
13.	• Open field condition or Protected Cover		
	• Integrated Post Harvest Management		
	• Total		
14.	Project completion period (in months)		
	Expected Implementation timeline	Commencement	
		Completion	
15.	Total Eligible Project cost as assessed by the Applicant as per NHB guidelines		
16.	Bank/ Financial Institution identified for Term loan		
17.	Proposed Means of Finance	Promoters contribution (in Lakh Rs.)&%	
		Bank Term loan (in Lakh Rs.) &%	
		Un secured loan (in Lakh Rs.) &%	
		Total	
18.	Gestation period		
19.	Projected Key Financial Parameters	Current Ratio other than export units	
20.		CR-Export units	
		IRR /BCR	
		DSCR*	
		Average DSCR	
		Debt to Equity Ratio i.e. DER	
		TOL/TNW	
		Promoters Contribution	
		Break Even Point	

		Security Coverage Ratio	
		Repayment period	
21.	Productivity expected (in MT/Qtl/Kg/numbers)		
22.	Likely Gap in productivity compared to National /Global average		
23.	Potential Market (s)for the commodity and distance from the project site		
24.	Employment generation	Direct- regular per annum	
		In-direct – Man days per annum	

1. About the Applicant / Promoter and his/her entrepreneurship

A. About Applicant / Promoter

1.1.In case of Individuals or Group of farmers (if applicable)		
Individual		
1. Name of Farmer / Entrepreneur/Individual/ Proprietor		
2. Parents or spouse name of Individual		
Group of Farmer growers / SHG- Promoters		
1. Name of Group		
2. Names of all members of group with their father, mother/husband/ wife name		
1.2.In case of Legal entity (if applicable)		
Name / Title		
1. Incorporation / Registration number/ CIN& date of registration		
2. Act under which Registered		
3. Registering authority		
4. Name of Promoter / CEO/CMD/MD/		
5. If it is FPO/ FPC/ Producers Co-op society / Growers Co-operative Marketing federation- Please specify		
6. If it is Reg. Society/ Company/ Corporation / Partnership firm / Proprietary firm- Please specify		
7. Name of Promoter (s)/ Board of Directors/ Partners etc.		
8. Status of the promoter / applicant in the legal entity-please specify		
9. Whether the promoter / applicant is authorised by the Legal entity- Yes/No		
10. In case of Company/partnership firms / legal person a. Certified copy of Company/Partnership incorporation/ registration certificate issued by Competent Authority, as applicable b. Certified copy of MoA/Bye Laws c. Certified copy of Board of Directors Resolution duly passed and authorizing signatory of application to apply for IPA d. Certified copy of latest Audit Report, if applicable i. (are to be made available in case the project and the application is considered for processing.- State Yes/No		
11. NGO- Specify- give details of registration		
1.3.Government Institutions / Organisations-- Please specify (if applicable)		
(i) Marketing Board / Agricultural Produce Marketing Committee APMC		
(ii) Municipal Corporation		
(iii) PSU/ Agro-Industries Corporation		
(iv) ICAR/CAU/SAU/ Government R&D Institution		

1.4.Statutary registration	(As per applicability)	
a. PAN No		
b. Aadhaar No.	Yes/No	
c. Udyog Adhaar No.		
d. GST		
e. Passport No if any		
1.5.Correspondence Address	Postal Address with PIN code	
	Telephone	
	Mobile	
	Email id	
	Fax if any:	
1.6.Project / Site Address		
1.7.Social Category (In case of legal entity the CEO and Board of Directors social category is to be mentioned)	General / SC/ST	
	OBC	
	Minority (Muslim/Christians/Sikhs/Buddhists/Parsis/Jains)	
	In case of SC/ST applicants a Certified copy of Caste Certificate issued by Competent Authority is to be enclosed. In case of others a self-declaration is to be enclosed.	
1.8.Location: TSP / NE Region / Hilly States	In case of TSP a self-attested copy of notification is to be enclosed.	
1.9.Gender	Male / Female/Transgender	

B. Applicant/ Promoters' Entrepreneurship:

1.10. CV / Biodata of Applicant (s) / Promoter (s) (Authorised by legal entity) in brief: (If applicants are more than one, all are to provide their CV / Biodata)

a. Name of Applicant/ Promoter:
b. Fathers' & Mothers' name:
c. Spouse name:
d. Date of Birth
e. Place of Birth (village/town/city, District and State)
f. Permanent Address:
g. Educational qualification (Higher Secondary, Under graduation Degree and above)

Education Metric/ U	Name of education / specialisation	Board / College / University/ Institute	Year of Pass	Remarks

h. Horticulture and project proposal specific Trainings if any undergone

Training	Duration and Period	Institute with address	Purpose for undergoing training

i. Current profession with details of Turnover, Accomplishments if any.

j. Previous profession during the last 5 Years with details of Turnover, Accomplishments if any

k. Experience- General and Horticulture

   a. General (Other than Horticulture) specify the activity, establishment/ Office, location etc.

   b. Horticulture-General: State specific activity- crop production, PHM etc. including project site, area, number of years, accomplishments etc.

   c. Horticulture-Experience in proposed activity: provide the name of establishment/office, location, number of years, specialisation etc.

l. Any information that establishes the applicants' entrepreneurship (Should be able to enclose evidence during Market & Financial Viability stage and during JIT):

1.11. Registrations with any Government Agency if any

Government Agency	Provide registration No. details with date and location of registration
a. SFAC	
b. NDDB	
c. MSME	
d. MSME/SSI	
e. Any other	

1.12. Commitment by the applicant: In case the project is approved for pre-IPA, the promoter / CEO/CMD and their technical personnel (minimum 2 in numbers) should undergo a 2 Weeks (min.10 working days) project specific training programme in one of the ICAR/CAU/SAU/SHU/ Research Station/ Centres of Excellence/ related Central or State Government institution/ others as found appropriate / approved by NHB.

In case of a Partnership firm/ Company / Legal person

a. Whether the proposed activity is covered under the objectives as per Memorandum of Association (MoA) / Rules explicitly: If so please provide the Article and Rule in verbatim.

b. Professional history of Legal entities Farmers Producer Organisations (FPOs), Self Help Groups, Partnership/ Proprietary Firms, NGOs, Companies (as a Board of Director), Corporations, Cooperatives, Co-operative Marketing federations/ Government Institutions.

c. Management structure if it is a company/ firm etc depicting the position of the applicant.

2.Details of benefits availed/ proposed to be availed by the applicant- either individually or as a member of Association of growers, Group of Farmer Growers/consumers, Farmers Producer Organisations (FPOs), Self Help Groups, Partnership/ Proprietary Firms, NGOs, Companies (as a Board of Director), Corporations, Cooperatives, Co-operative Marketing federations from (i) NHB and (ii) other Ministries/ organisations of Central Government and (iii) State Governments including NHM for Horticulture related projects.

Note: The beneficiary should be truthful. In case any information is received later on at any stage about his/her availing of benefit which is not disclosed hereunder will entitle NHB to reject the current proposal and recover the funds if already released.

2.1.In this / proposed project and location:

1. Whether the proposed project proposal has been submitted for consideration under any State Government or Central Government Scheme for financial grant? If yes give details.

2. Whether any subsidy has been availed from the Board, other Central Govt. organisation or State Government for the same activity on the same piece of land, khasra/ Gat/Dag/ etc. either in his / her own name individually or in the name of his/her family members or through any legal entity in which he/she is the beneficiary either in the same location, project. - Yes/ No. If Yes, Please provide details

Constitution – Individually or in any form	Ministry/ Organisation	Scheme Name	Project code & Activity	Project Location	Land Survey No	Eligible Project cost (Rs.in lakhs)	Total subsidy/ grant (Rs.in lakhs)	Current status of project- Operational / underutilised / closed

2.2.In earlier/ any other Project (s) : Either in his / her own name individually or in the name of his / her family members or through any legal entity or in any form or constitution, in which he / she is the beneficiary either in the current proposed project location or any other location.

2.2.1.From NHB : Whether any assistance in the form of soft loan and subsidy has been availed earlier from the National Horticulture Board? If yes, give details thereof

Year	Scheme Name	Project code & Activity	Project Location	Land Survey No	Eligible Project cost	Total subsidy /grant availed	Current status of project- Operational / underutilised / closed

2.2.2.From Central Government- Ministries / Organisations:

Year	Scheme Name	Project code & Activity	Project Location	Land Survey No	Eligible Project cost	Total subsidy / grant availed	Current status of project- Operational / underutilised / closed

2.2.3.From State Governments:

Year	Scheme Name	Project code & Activity	Project Location	Land Survey No	Eligible Project cost	Total subsidy /grant availed	Current status of project- Operational / underutilised / closed

2.3. Operational status of earlier projects under NHB scheme and other Central Ministries and State Government.

Year	Organisation / Ministry which released assistance	Activity for which assistance is availed& code	Dates			As on date Project Operational status (Running or Closed)	Annual Turnover (of previous Year)	Exports if any	Profitable or loss making	Remarks / Reasons
			Subsidy received	Project completed	Commenced production					

* in case of completed projects and where proposals envisioning expansion/ modernisation are proposed, Annual Reports and Audited Statement of Accounts of the last 3 years are to be made available along with Bank appraisal during Market and Financial Viability stage both online and offline.

2.4.Please provide map of earlier / other subjects and this project- Key map of project land showing project details and land boundary details

2.5. Provide the following details:

a. Have you ever been refused / denied subsidy claim from NHB, NHM, APEDA, NCDC, MoFPI? If Yes please provide details of (i) Project code, (ii) Name of Applicant, (iii) Address (iv) Project activity etc. and the reason for such refusal / denial:

b. If you were a recipient of Government subsidy, have you / your Bank/FI ever been asked to refund the subsidy / call back? If Yes please provide details of (i) Project code, (ii) Name of Applicant, (iii) Address (iv) Project activity etc. and the reason for such refusal / denial:

Attention:

1. In case the project application is considered for Pre-IPA, the applicant shall have to enclose No Objection Certificate from State Government / State Horticulture Mission that there is no duplication of funding for the project and the applicant shall also submit self-declaration that he/she is not availing government subsidy / grant / assistance from any other ministry.

4. About the Project, Rationale, Management and Description

2.1.About the Project

1. Name of the Project	
2. Correspondence Address:	
3. Address of Project Site :	
4. Project Activity and Scheme components (Should be as per NHB scheme latest scheme guidelines- please verify):	

No.	Name of the scheme and component	Unit	Tick mark relevant component
5	Development of Commercial Horticulture through Production and Post-Harvest Management of Horticulture Crops		
	1. Open field condition		
	2. Integrated PHM		
	a. 3.1.Pack House		
	b. 3.2.Integrated Pack house		
	c. 3.3.Pre-cooling unit		
	d. 3.4. Cold Room (Staging)		
	e. 3.5 Primary Processing		
	f. 3.6 Refer Van		
	g. 3.7.Retail outlet (environmentally controlled)		

6. Details of Crop in case of Open field condition

Name of the Crops	Variety / Hybrid/ Cultivar	Area (acres)	No. of plants	Source of Planting Material

7. Products, product Mix, by products and Services of the Project
8. Objectives of the Project
9. Expected Outcomes of the Project
10. Socio-economic benefit to the region /District / State

3.2. Rationale / Justification for the project

3.2.1. Rationale

3.2.2. Details of similar projects / crop in the neighbourhood and the District -Area, Production and Productivity briefly. Provide more details in Market viability chapter.

3.2.3. Raw Materials: How quantity and quality of inputs/ raw materials is assured.

3.3. Project Site/ Land details:

3.3.1. Proposed Project Area:

	Activity	Area proposed
1	Cultivation –	
	Open Cultivation (Ha)	
2	PHM	
3	Plant and Machinery	
4	Any other activity	

3.3.2. Land details- RoR/ Ownership / Registration of lease/ map etc.

A	Name of Owner of land proposed for the project as per Land Revenue Records				
	Whether title of the land is clear in the name of applicant and is free from any litigation				
	How Title is derived	Ancestral			
		Purchased (with details of date)			
	Encumbrances if any				
B	Name of the Owner in case of joint ownership		Survey/ Gat /khasraNo etc.	Area in Sq.mt / Ha	Share
	Whether land boundaries are demarcated for the applicant clearly.		Yes/No		
	Whether land is in possession of the Applicant				
C	In case of Partnership				
	1. Whether land is owned by Partnership firm or jointly by its partners		Yes/No		
	2. NOC: If land is owned by one of the partner, an undertaking by land owner is required stating that he/she will not withdraw, sale or transfer his/her land during currency period of the project				
	Whether land is in possession of the Applicant				
D	In case of Lease				
	1. In case the land is that of leased, Registration details of the said leased land in the office of Sub-Registrar				
	2. No.of Years of lease				
	3. Whether lease is entered in RoR		Yes/No		
	Whether land is in possession of the Applicant				
E	Whether land is mortgaged? If yes provide details of mortgagor and mortgagee				

3.4. Location of the Project- Identification (Longitude, Latitude, Altitude, Village, GP, Block, District, State), Area, Number of growers.

1.	Location Address	
2.	a. Survey/Khasra/ Dag/ Other No	
3.	b. Habitation/ Village	
4.	c. Gram Panchayat / Urban body	
5.	d. Block / Urban body	
6.	e. Sub-Division	
7.	f. District	
8.	g. State /UT	
9.	Location Longitude, Latitude& Altitude	
10.	Total Area of land owned (ha)	
11.	Total Area proposed for project (ha)	

Google map with coordinates:

3.5. Current usage of land of proposed Project Area

Proposed Project			**Current usage**		
Survey / Dag etc. No.	Nature of land Dry/ Irrigated/ Waste land	Area (ha)	Activity / Crop	Area (ha)	Mortgage Yes/No If Yes with whom

3.6. Current infrastructure and assets possessed by the Applicant:

Category	Asset Name	Year of Purchase	Make	Capacity	Cost
Fixed Assets	Tube well				
	Dug Well				
	Drip irrigation				
	Electric Motors				
	Tractor				
	Tiller				
	Transport vans				
	Vermi compost shed				
	Stores				
	Pack house				
	Labour room				
	Water harvesting pond				
	Installation/digging				
	Pipeline				
	Others				
Operating Assets	Planting Material				
	Support system				
	Tools and implements				

3.7. Lay out plan of the project/ Map of Farm / production/ Operations unit / project land showing project details and land boundary details

3.8. Conversion of Land Use (CLU) if applicable

Whether Land in possession of the applicant is with/ without approval for industrial use/Whether CLU permission for the project has been received from competent authority: If Yes- Please provide details of the authority approved with full designation, address contact numbers and email id, approval No. and date

3.9. Whether project site is part of production belt / cluster / hub? If yes, provide details of working relations with other farmers

3.10. Rationale for the choosing the said Location for implementation of the project / Location advantages and disadvantages

Connectivity :

Road connectivity- Distance from	National High way	
	State Highway	
	Fright Corridor	
	Golden Quadrilateral	
Rail connectivity		
Air connectivity		
Water ways		
Market connectivity		

Supply side suitability: Raw material Catchment area

Whether project site is part of production belt / cluster / hub? **If yes, provide details of working relations with other farmers**

Road connectivity- Distance from (Range)	National High way	
	State Highway	
	Fright Corridor	
	Golden Quadrilateral	
Rail connectivity		
Air connectivity		
Water ways		
Market connectivity		

Map of Catchment Area:

Demand side suitability

Proximity and connectivity of project site to major consumption centres /Mandies

Demand centres	Names	Distance from the proposed site
Agriculture Primary Market Committees - APMCs / Mandies		
Tier-1, 2 and 3 cities		

Map of consumption Centres

Other Merits/ Advantages:

3.11. Compliance of project site for food safety

The information on soil condition and site on water logging, industrial waste and effluents.

Run off and contaminated water is not allowed to enter fields.

3.12. Components / Activities of the Project with justification (Please refer NHB scheme guidelines)

No.	Name of the scheme and component	Justification
1	Development of Commercial Horticulture through Production and Post-Harvest Management of Horticulture Crops	
	1. Open field for specified crops	
	2. Protected cultivation for specified crops	
	3. Integrated PHM	
	3.1.Integrated Pack house	
	3.2.Pack House	
	3.3.Pre-cooling unit	
	3.4. Cold Room (Staging)	
	3.5 Primary Processing	
	3.6 Refer Van	
	3.7. Retail outlet (environmentally controlled)	

Component wise cost of the Project and NHB Norms

Scheme Component	Items	Sub- items	Capacity/ Area/ spacing/ size Etc.	Units/ Numbers	Likely / unit cost	NHB Norm
Open field Cultivation	Cultivation Expenses	Planting material				
		Input cost (Labour, Manure & Fertilisers, pesticides etc.)				
		Others				
	Irrigation	Tube well/ bore well/ Open well (Nos.)				
		Cost of Pipeline from source of irrigation to production unit (Length, Size & Material)				
		Water harvesting structure / Water tank min. 300 microns				
		Non lined ponds/tanks				
		Others				
	Drip / Sprinkler					
	Civil Infrastructure	Functional pack house				
		Store & Pump house (Area in sq.ft with size)				
		Labour room & go down (Area in Sq.ft with size)				
		Others				
	Farm Mechanisation (AC)	Tractor up to 20 BHP				
		Power Tiller	HP			
		Equipment's-driven by Tractor/ Power Tiller				
		Mulch laying machine				
		Self-propelled hort. Machinery				

		Other tools and equipment's as per Sub Mission on Agriculture Mechanisation (SMAM)				
		Others				
	Land Development	Soil levelling / Digging/Fencing etc.				
		Others if any				
	Land if newly purchased but not before one year from date of sanction of Term loan (indicate year)					
	Vermi Compost Unit					
	• 1. Permanent Structure					
	• 2, HDPE Vermibed (12ft X 4ft X2 ft)					
	Certification of Good Agricultural Practices (GAP) including infrastructure (AC)					
	Plastic Mulching					
	Others					
	Grand Total					
Scheme			Capacity/ Area/ Spacing etc.	Units/ Number	Likely /Unit cost	NHB Norm
Integrated PHM	1. Integrated PHM					
	3.1.Pack House					
	3.2.Integrated Pack house					
	3.3.Pre-cooling unit					
	3.4.Cold Room (Staging)					
	3.5.Refer Van					
	3.6 Primary Processing					
	3.7.Retail outlet (environmentally controlled)					
		Others				

Note: NHB Norm: means over all ceiling in project mode with add on component as per NHB Scheme guidelines. (Appendix 1-A)

AC: Add on component: Over and above the cost ceiling.

3.13. Operations Planning

1.	Name of Farm / Project Manager (working directly under the applicant / CEO) if any.-optional	
2.	Name of agency providing technical know-how and turn key for cultivation- and contact person Name and contact numbers	
3.	Operations:	
	1. Land preparation	Own / custom hiring
	2. Procuring planting material/seeds	Own / outsourcing
	3. Orchard planning, layout	Own / outsourcing
	4. Water and nutrient management	Own / outsourcing
	5. Pruning & Training	Own / outsourcing
	6. Pollinators & Pollinsers	Own / outsourcing
	7. Plant growth regulators	Own / outsourcing
	8. Integrated Pest & Disease management	Own / outsourcing
	9. Physiological disorders	Own / outsourcing
	10. Farm Mechanisation	Own / outsourcing
	11. Harvesting/ Fruit/Flower care management	Own / outsourcing
	12. Post-Harvest Management	Own / outsourcing
	a. Pre-cooling	Own / outsourcing
	b. Curing	Own / outsourcing
	c. Cleaning / Washing	Own / outsourcing
	d. Sorting and Grading	Own / outsourcing
	e. Packing and labelling	Own / outsourcing
	f. Ripening	Own / outsourcing
	g. Transport	Own / outsourcing
	h. Storage- Low cost/ Cold Room/ CA	Own / outsourcing
	i. Refer van	Own / outsourcing
	j. Retail outlet	Own / outsourcing
	k. Cold chain	Own / outsourcing
	13. Marketing	Own / outsourcing
	14. Processing	Own / outsourcing

3.14. Profile of Agency executing erection of Protected Structure/ Post Harvest Infrastructure (based on project / applicability etc.

1.	Name of agency providing technical know-how and turnkey basis with full address of its Hq	
2.	Agency local Address	
3.	CIN / Company Incorporation No.	
4.	GST No.	
5.	CEO of the Agency	
6.	Contact person Name and contact numbers	
7.	Details of Technical Manpower available	(Desirable)
8.	Number of years of experience of the Company / Agency	(Desirable)
9.	No of plants set up till date during the last 5 years in the State	(Desirable)
10.	Turnover of the Agency	(Desirable)
11.	Whether firm has been blacklisted ever by any government or corporate firm	(Desirable)

3.15. Quality of Services of Agency executing Post Harvest Infrastructure (based on project / applicability etc.

1.	Hardware: Guarantee offered	Guarantee Period & conditions if any
	1.	
	2.	
	3.	
2.	Hardware: Warranty offered	Warranty period & conditions if any
	1.	
	2.	
	3.	
3.	Services: Supervision and After sales service	Free service Period
4.	Others	
5.		
6.		
7.		
8.		

3.16. Month wise operational chart / Implementation schedule: Commencement to completion:

Project Implementation period in case of approval: Months.

Proposed/ Tentative dates of	Bench mark / Activity	Approximate date
Project Commencement	Land development or Land/ Site Preparation	
First Commercial Crop / plantation / operations if any / Plant & Machinery etc.		
Project Completion		

Activity	Units	Months					
		JF	MA	MJ	JA	SO	ND
1. Land development		√		√			
2. Land preparation			√				
3. Procuring planting material/ seeds				√	√		
4. Orchard planning and layout			√				
5. Water and nutrient management				√	√	√	
6. Pruning & Training		√	√				
7. Pollinators& Pollinisers					√		
8. Plant growth regulators		√					
9. Integrated Pest & Disease management				√	√		
10. Physiological disorders						√	
11. Farm Mechanisation-procurement							
12. Farm Mechanisation operations		√		√			
13. Harvesting/ Fruit care management		√	√	√	√		
14. Post-Harvest Management							
a) Pre-cooling		√	√	√			
b) Curing		√	√	√			
1. Cleaning / Washing		√	√	√			
c) Sorting and Grading		√	√	√			
d) Packing and labelling		√	√	√			
2. Ripening		√	√	√			
3. Transport		√	√	√			
e) Storage- Low cost/cold storage/ CA		√	√	√			
f) Cold chain		√	√	√			
15. Marketing		√	√	√			
1. Value/ addition Processing		√	√	√			

Note: The table can be extended as per need.JF: January/ February; MA: March/April and similarly other abbreviations.

3.17.Number of days of Operation / Crop etc:

3.18. Backward and Forward linkages

1. Backward linkages -with growers, input suppliers etc.

Operations	Agency / Agents / providers (specify the proposed location)	Distance	Remarks
Seed/ Planting Material			
Manure			
Fertilizers			
Bio fertilizers			
Bio pesticides			
Fertilizers			
Pesticides / Insecticide			
others			

2. Forward linkages- for Domestic and Export Market

Operations	Agency / Agents / Service providers (specify the proposed location)	Distance	Remarks
Storage Unit			
Processing Unit			
Local Market			
Terminal market			
Farm Market			

3. Briefly explain as to how the produce will be consolidated (backward linkages) and marketed/exported (forward linkages)

4. How transportation of raw material and produce is planned?

3.19. Manpower (Skilled Labour, Expertise etc.), Required, Already available, Gaps and the management in a Year.

3.19.1. Managerial and Technical

		Managerial				Technical				Gap	
		Requirement		Availability		Requirement		Availability		S	US
		Number	No.of Days	Number	No.of Days	N	D	N	D		
	a) Manager	1	270			2	270				
	b) Finance & Accounts	1	*			1	90				
	c) Typing / IT operations	1	*			2	90				

3.19.2. Skilled and Unskilled Labour

		Skilled Labour				Unskilled labour				Gap	
		Requirement		Availability		Requirement		Availability		S	US
		Number	No.of Days	Number	No.of Days	N	D	N	D		
	Operations/ activity										
	d) Administration	2									
	e) Manager	2	270								
	f) Finance & Accounts	2	90								
	g) Typing / IT operations	2	90								
	h) Watch man	2	150			4	240				
	Crop husbandry										
	a) Planting	5	2								
	b) Basin preparation	3	5								
	c) Pit preparation	5	5								
	d) Irrigation(1 irrigation)	2	2								
	e) Manuring & fertilization	2	5								
	f) Plant protection(3 frequency)	6	9								
	g) Weeding, hoeing (twice)	8	10								
	h) Pruning	5	10								
	i) Harvesting, grading, packing etc.	4	50								

3.20. Employment Generation per annum

No. of man days / Annum	445
Permanent man power -Permanent (on rolls)	
Casual / Temporary	

3.21. Infrastructure and connectivity (Power, Fuel, Water, Plant and Machinery, Effluents treatment etc.)- Required, Already available, Gaps and the management.

Utility	Requirement	Remarks
Power	Likely Daily power requirement	
	Likely Annual Power requirement	
	Proposed Source of Power	
	Access to Power is assured or not	
	Alternative Source of Power in case of breakdowns	
	Whether renewable alternate energy to power is under consideration	
Water	Source – Ground Water /Surface Water	
	Existing or New source	
	Whether NOC has been taken from CGWB / State Government Ground water regulation authority-	Yes/No
	Water measurement systems is planned	
	Daily Water requirement	
	Whether water harvesting is planned	Yes/No
	Water productivity parameters proposed if any	
	Quantity of effluents likely	
	Water treatment plant if any proposed	Yes/No
Fuel	Access to fuel to power- Generators- Yes/No	
	Nearest fuel depot	
Water	Source – Ground Water /Surface Water	
	Existing or New source	
Plant & Machinery		
Vermi compost	If available Numbers and Capacity. Types: 1. Permanent Structure and 2, HDPE Vermi bed (12ft X 4ft X2 ft)	
Animal Husbandry	Details of Animals Capacity / Income	
Environmental issues of the project if any		
Fencing		

Any other		

3.22. SWOT Analysis

1	Strengths	Well adapted with climatic condition
		Plenty number of varieties and their adoptions in different agroclimatic conditions make the availability of produce for expanded time.
		Less water requiring crop suitable rain fed crop due to coincide critical stages with abounded moisture period and summer deciduous nature.
2	Weaknesses	Perishable commodity
		Low productivity in moisture stress conditions
		Harvesting labour consuming
		Inadequate post harvest handling and processing infrastructures
3	Opportunities	Climate variability can be used advantageously for extended harvest and availability in aonla
		New varietal developments give competitive advantage for the export promotion.
		Crop of poor man's so better accessibility for tribal as nutritional security better opportunities.
4	Threats	Inadequate infrastructure set up in the direction of post harvest management.
		Productivity wide gap (rainfed vs irrigated conditions)

Attention of the applicant:

1. Applicant shall not change project land, proposed crop / activity / component, area and bank / financial institution in the proposal during the project implementation period. Thus any change in crop or project site shall make the component or project, as the case may be, ineligible for getting subsidy.

(Signature of the Applicant)
with date and time.

4	**NHB Scheme under which the project is proposed with rationale/ justification.**	

1. Scheme.1: Scheme guidelines

SCHEME-1

1. Development of Commercial Horticulture through Production and Post Harvest Management of Horticulture Crops

Credit linked projects relating to establishment of commercial production units in open field as well as under protected conditions and projects on Post harvest Management and primary processing of products are eligible for assistance under this scheme as per cost norms given in Annexure- III. However, release of Subsidy need not be credit linked in North Eastern States and for the institutions like Public Sector Units, Panchayats, cooperatives, registered societies/trust and public limited companies provided they can meet remaining share of the project cost out of their own resources. Such projects will have to be appraised by appraising agency approved by NHB.

Description of components and Pattern of Assistance

1.1 Commercial Horticulture Development in open field conditions on project mode

National Horticulture Board will take up integrated commercial horticulture development projects in open field conditions on project mode , including components viz planting material, plantation, irrigation, fertigation, mechanization, precision farming, GAP etc. for projects covering area over 2.00 ha. (5 Acres) Integration of production unit with on farm PHM components and primary processing unit shall also be allowed in project mode. Cost of raising new plantation will vary from crop to crop, which will be taken into consideration while providing assistance to the beneficiary. Integrated production unit on Mushroom and tissue culture shall also be eligible for assistance under this component. The components like farm machinery and PHM infrastructure, irrigation and micro irrigation etc shall be eligible under the scheme for assistance in existing/new orchards/projects to increase productivity.

Pattern of assistance

Credit linked back-ended subsidy @ 40% of the total project cost limited to Rs 30.00 lakh per project in general areas and @ 50% of project cost limited to Rs. 37.50 lakh in NE Region, Hilly and Scheduled areas.

1.2 Commercial Horticulture Development in protected cover on project mode

The Board will also take up commercial horticulture development projects under protected cover on project mode including components viz planting material, plantation, irrigation, fertigation, mechanization, etc for projects having area over 2500 sq meter. Activities like construction of green houses, shade net house, plastic mulching, and plastic tunnel, anti bird /hail nets etc would be promoted. Provision has been made for selecting a variety of construction material for green houses and shade nets houses. Preference will be given to using locally available material to minimize cost of construction of such structures. However, for availing subsidy, all material /technology should conform to prescribed standards.

Pattern of assistance

Credit linked back-ended subsidy @ 50% of the total project cost limited to Rs 56.00 lakh per project as per admissible cost norms for green houses, shade net house, plastic tunnel, anti bird /hail nets & cost of planting material etc.

1.3 Integrated Post Harvest Management projects

The Board will take up Integrated Post Harvest Management projects relating to Pack House, Ripening Chamber , Refer Van , Retail Outlets, Pre- cooling unit, Primary processing etc . NHB will also take up projects in component mode and for standalone projects of PHM components.

Pattern of assistance

Credit linked back-ended subsidy @ 35% of the total project cost limited to Rs 50.75 lakh per project in general area and @ 50 % of project cost limited to Rs. 72.50 lakh per project in NE , Hilly and Scheduled areas.

1.4 General conditions

I. Credit component as means of finance of the project should be term loan from banking or non banking financial institutions. For credit linked projects under NHB, eligible subsidy amount to be capped at par with term loan sanctioned by the lending Banks/FI

II. Normative cost of various components shall be prescribed by NHB.

III. Benefit of exclusive components of cold storage scheme shall also be available to the promoters over and above the assistance that will be provided under Commercial Horticulture Scheme to set up integrated projects for production and PHM components.

IV. Projects relating to setting up of new units shall be technically and financially appraised to ensure and enable entrepreneur to incorporate latest available technology.

V. Assistance can also be availed for a combination of PHM infrastructure components by a beneficiary, within the prescribed norms of individual items.

1.5 Detailed instructions for making application and other relevant information are given at Chapter-I (Pages 19 to 26 of this booklet)

2. Cost Norms and pattern of assistance: Copy paste scheme guidelines

APPENDIX- 1

COST NORMS AND PATTERN OF ASSISTANCE UDNER MIDH FOR NATIONAL HORTICULTURE BOARD RELATED ACTIVITIES DURING XII PLAN

S.No.	Item	Cost Norms*	Pattern of Assistance#
A.	**Development of Commercial Horticulture ##**		
A. 1	Commercial Horticulture Development in open field conditions, including components viz planting material, plantation, irrigation, fertigation, precision farming, GAP etc.	Rs. 75.00 lakh /per project (Rs 125.00 lakh for date palm, olive and saffron) for projects covering area over 2 ha.	Credit linked back ended subsidy @ 40% of project cost limited to Rs.30.00 lakh per project in general area and @ 50% of project cost limited to Rs. 37.50 lakh for NE and Hilly and scheduled areas. Component-wise/crop-wise cost norms are given at Appendix - 1. Add on component given in appendix-1-A may be added in project mode within over all cost ceiling
A. 2	Commercial Horticulture Development in protected cover.	Rs 112.00 lakh per project covering area above 2500 Sq.mt.	Credit linked back-ended subsidy @ 50% of cost limited to Rs.56.00 lakh per project.
	Protected cultivation		
	1. Green House structure		
	(a) Fan & Pad system	Rs. 1400/Sq. m and Rs. 1610/ Sq. m for hilly areas	50% of cost for above 2500 Sq.m
	(b) Naturally ventilated system		
	i) Tubular structure	Rs. 844/Sq. m and Rs.970/Sq. m for hilly areas.	50% of cost for above 2500 Sq.m
	ii) Wooden structure	Rs. 540/Sq. m and Rs. 621/Sq. m for hilly areas	50% of cost for above 2500 Sq.m
	iii) Bamboo structure	Rs. 450/Sq. m and Rs. 518/Sq. m for hilly areas	50% of cost for above 2500 Sq.m
	2. Shade Net House		
	(a) Tubular structure	Rs. 710/Sqm and Rs. 816/Sqm for hilly areas	50% of cost for above 2500 Sq.m
	(b) Wooden structure	Rs. 492/Sqm and Rs. 566/Sqm for hilly areas	50% of cost for above 2500 Sq.m
	(c) Bamboo structure	Rs.360/Sqm and Rs.414/Sqm for hilly areas	50% of cost for above 2500 Sq.m
	3.Plastic Tunnel	Rs.60/Sq.m and Rs.75/sq. m for hilly area	50% of cost for above 2500 Sq.m
4	Walk in Tunnel	Rs.600/ Sq. m	50% of cost for above 2500 Sq.m
5	Anti Bird/Anti Hail Nets	Rs.35/Sq.m	50% of cost for above 2500 Sq.m

6	Cost of Planting Material and cultivation of High Value vegetables grown in Poly House/Shade net House	Rs.140/Sq.m	50% of cost for above 2500 Sq.m
7	Cost of Planting Material and cultivation of Orchid and Anthurium grown in Poly House/Shade net House	Rs.700/Sq.m	50% of cost for above 2500 Sq.m
8	Cost of Planting Material and cultivation of Carnation & Gerbera grown in Poly House/Shade net House	Rs.610/Sq.m	50% of cost for above 2500 Sq.m
9	Cost of Planting Material and cultivation of Rose & Lilium grown in Poly House/Shade net House	Rs.426/Sq.m	50% of cost for above 2500 Sq.m
10	Plastic Mulching	Rs.32000/Ha and Rs.36800/ Ha for Hilly Areas	50% of cost for above 2500 Sq.m
A. 3	Integrated Post Harvest Management Projects e.g. Pack House, Ripening Chamber, Refer Van, Retail Outlets, Pre-cooling units, Primary Processing etc.	Rs. 145.00 lakh per project. The add-on components of pre-cooling, pack house, grading, packing, cold room can be taken up as individual components.	Credit linked back ended subsidy @ 35% of cost limited to Rs.50.75 lakh per project in general areas and @ 50% of project cost limited to Rs. 72.50 lakh per project in NE, Hilly and scheduled Areas, ensuring backward and forward linkage.
	Component wise cost norms of Integrated Post Harvest Management		
1	Pack house	Rs. 4.00 lakh/unit with size of 9Mx6M	50% of the capital cost.
2	Integrated pack house with facilities for conveyer belt, sorting, grading units, washing, drying and weighing.	Rs. 50.00 lakh per unit with size of 9Mx18M	Credit linked back-ended subsidy @ 35% of the cost of project in general areas and 50% of cost in case Hilly & Scheduled areas for individual entrepreneurs.
3	Pre-cooling unit	Rs. 25.00 lakh / unit with capacity of 6 MT.	Credit linked back-ended subsidy @ 35% of the cost of project in general areas and 50% of cost in case Hilly & Scheduled areas for individual entrepreneurs.
4	Cold room (staging)	Rs. 15.00 lakh/ unit of 30 MT capacity	Credit linked back-ended subsidy @ 35% of the cost of project in general areas and 50% of cost in case Hilly & Scheduled areas
5	Mobile pre- cooling unit	Rs. 25.00 lakh	Credit linked back-ended subsidy @ 35% of the cost of project in general areas and 50% of cost in case Hilly & Scheduled areas
6	Ripening Chamber	Rs. 1.00 lakh/MT (11 CuM of chamber volume shall be equivalent of 1 MT of storage capacity)	Credit linked back-ended subsidy @ 35% of the cost of project in general areas and 50% of cost in case Hilly & Scheduled areas

APPENDIX- I-A

Cost norms for open field cultivation under NHB Scheme

Cost in Rs. per acre

Crop	Plant spacing (m)	No. of Plants/Acre	Planting material /Acre	Overall All ceiling in project mode with add on component
Almond	4.0 × 4.0	100	15000	150000
	3.0 × 3.0	177.76	26664	160000
Aonla	6.0 × 6.0	44.4	4003.2	125000
	4.0 × 5.0	80	7200	130000
	3.0 × 3.0	177.6	15984	170000
Apple	6.0 × 6.0	111.2	6672	150000
	4.0 × 4.0 (RS- MM 111)	250	15000	160000
	3.5x3.5 (RS- MM 111)	325.6	19536	175000
	3.0 × 3.0 (RS- MM 106)	444.4	26664	185000
	3.0 × 1.5 (RS- M9)	888.8	53328	200000
	2.5 × 2.5 (RS- MM 106)	640	38400	190000
	1.5 x 1.5 (RS- M9)	1777.6	106656	275000
Apricot	4.0 × 4.0	250	15000	160000
	3.5 × 3.5	326.4	19584	175000
Banana (Sucker)	2.0 × 2.0	1000	10000	125000
Banana (TC)	1.8 × 1.8	1234.4	20984.8	150000
	1.5 × 1.5	1777.6	30219.2	175000
Ber	6.0 × 6.0	111.2	3336	125000
	5.0 × 5.0	160	4800	125000
	4.0 × 4.0	250	7500	130000
Cherry	4.0 × 4.0	250	7500	125000
(a) Lime & Lemons	3.0 × 3.0	444.4	15998.4	200000
	4.0 × 4.5	222	7992	175000
(b) Mandarine / Orange	6.0 × 6.0	111.2	4003.2	175000
	5.0 × 5.0	160	5760	175000
	5.0 × 4.5	177.6	6393.6	175000
	4.5 × 4.5	197.6	7113.6	175000
	4.0 × 5.0	200	7200	175000

Crop	Plant spacing (m)	No. of Plants/Acre	Planting material /Acre	Overall All ceiling in project mode with add on component
Pineapple (TC)	0.6 × 0.3	18000	72000	225000
	0.3 × 0.6 × .9	17200	68800	200000
	.225 × .6 × .9	21200	84800	220000
Plum	3.5 x 3.5	326.4	13056	125000
	2.5 x 2.5	640	25600	150000
Pomegranate	5.0 × 5.0	160	6400	175000
	5.0 × 3.0	266.8	10672	185000
	4.0 × 3.0	266.4	10656	185000
Sapota	5.0 × 5.0	160	5760	150000
Strawberry	0.9 × 0.45	9876.4	49382	200000
	0.6 × 0.25	26666.4	133332	275000
	0.5 × 1.0	800	4000	175000
Walnut	6.0 × 6.0	111.2	16680	150000
	5.0 × 5.0	160	24000	150000
Jack Fruit	10x10	40	600	125000
Cashew nut	Normal	85	5740	200000
Coconut	Normal	95	6650	150000
Olive	Normal	105	3150	150000
Date Palm	Normal	71	2840	150000
Black Pepper	Normal	880	2500	150000
Cardamom	Normal	2030	12180	230000
Citronella	Normal	11000	5500	125000
Geranium	Normal	11000	5500	125000
Stevia	Normal	28350	141000	300000
Palmarosa	Normal	11000	5500	125000
Mint *Kg	Normal	100	2000	150000
Celery	Normal		2500	125000
Tamarind	10 x 10	40	2000	125000

Note:

1. Wherever cost norms are not given, cost norms available under MIDH scheme for similar activity shall be followed. In case norms are not available under MIDH schemes also, cost appraised by bank as per bank norms or approved by Competent Committee of NHB shall apply.

2. In project mode, applicant may opt for add on components as per norms given Appendix-1C but unless otherwise specified, cost ceiling, as prescribed for each crop/activity shall be applied where cost of add on components exceeds prescribed ceiling.

APPENDIX- I-B

Cost norms for protected cultivation under NHB Scheme

Cost Rs Lakh per acre

SN	Crop	Cost of poly house with drip & fogger system *	Cost of cultivation	Cost ceiling per acre with add on components in project mode
1	Anthurium & Orchid	33.76	28.00	70.00
2	Rose, Lilium Chrysanthemum	33.76	17.04	60.00
3	Carnation & gerbera	33.76	24.40	66.00
4	Hi-value vegetable under poly house	33.76	5.60	47.00
5	Hi-value vegetable under shade net	28.40	5.60	40.00

- Cost of Tubular structure in plain area. In hilly area cost of poly house will be 15% more.

Note:

1. Wherever cost norms are not given, cost norms available under MIDH scheme for similar activity shall be followed. In case norms are not available under MIDH schemes also, cost appraised by bank as per bank norms or approved by Competent Committee of NHB shall apply till cost norms are prepared.
2. In project mode, applicant may opt for add on components as per norms given Appendix- 1C but unless otherwise specified, cost ceiling, as prescribed for each crop/activity shall be applied where cost of add on components exceeds prescribed ceiling.

Appendix –1-C

Norms for Technology Add-on components and other essential components of Integrated Commercial Horticulture projects

S.No.	Item	Description	Admissible Cost
	Cutoff date for implementation		
I	Cost of Land * #	Admissible only if purchased newly but not before one year from date of sanction of loan.	Actual or up to 10 % of Eligible Project Cost (EPC) (Excluding cost of Land and Development) whichever is less subject to maximum of Rs. 50,000/- per acre.
I (i)	Land Development * #	Includes cost of Land leveling, digging of pits, fencing , gates etc.	Actual or up to 15% of Eligible Project Cost (EPC) (Excluding cost of Land and Land Development) whichever is less subject to maximum of Rs. 50,000/- per acre.
II	Cultivation expenses * #	Includes cost of Planting material , cost of input (labour , fertilizer and manures, pesticides etc)	As per MIDH (NHM) cost norms as given at Appendix- 1
III	Drip system with internal pipeline	Component includes mainline, valve, backflow preventer pressure regulator, filter, tubing adapters and fittings, drip tubing, emitters and an end cap	• Actual or Rs. 20,000/- per acre for plant density up to 200 plants • Actual or Rs. 25,000/- per acre for plant density > 200 plants / acre • Sprinkler @ Rs 15,000/ per acre
III (i)	Irrigation infrastructure excluding micro irrigation * #	Irrigation infrastructure like tube-well/bore well/open well, pipeline, water harvesting structure, water tank etc, admissible only if newly created with loan component	• Actual or up to Rs. 50,000/- per acre for open field cultivation. • Rs. 4.00 lakh per project in case of protected cultivation. Component–wise cost norms will be as under 1. Tube-well – up to Rs 2.50 lakh per unit 2. Water harvesting structure- @ Rs.100/- CuM.with use of minimum 300 microns plastic films or RCC lining. 3. Cost of non lined ponds/tanks will be 30% less. 4. Pipe line-Rs 150/- per running meter only from source (min. 4" diameter) of irrigation to production unit

S.No.	Item	Description	Admissible Cost
IV	Horticulture Mechanization * # # #	• Power/hydraulic operated machine/tools including small farms tractor with rotavator / equipments etc. • Machineries Identified by NHB under farm mechanization component may be considered for subsidy in standalone mode	• Tractor (up to 20 BHP) @ Rs.3.00 lakh/unit • Power Tiller below 8 BHP @ Rs.1.00 lakh/unit • Power tiller 8 BHP & Above @ Rs.1.50 lakh/unit • Tractor/Power Tiller (below 20 BHP) driven equipments - Land development, tillage and seed bed preparation equipments -@ Rs.0.30 lakh per unit - Sowing, planting reaping and digging equipments - @ Rs.0.30 Lakh per unit • Plastic mulch laying machine – Rs.0.70 Lakh per unit • Self-propelled Horticulture machinery - @ Rs.2.50 lakh per unit • Other tools and equipments as per norms as per norms of Sub Mission on Agriculture mechanization (SMAM)
V	Civil Infrastructure * #	Includes Functional Pack House/ On farm collection unit and labour quarter	1. Functional Pack house @ Rs. 4.00 Lakh/unit with size of 9 x 6 Meter (Pro rate basis for lower size) 2. Labour Quarter/ Store room @ Rs. 20,000/- per acre Maximum up to 3.00 lakh. Cost norm as per pack house
VI	Vermi Compost unit * #	Permanent structure and HDPE vermibed	Rs.60,000/- per unit for permanent structure and Rs.10,000/- for HDPE vermibed (96 cft (12'x4'x2' and IS 15907:2010 to be administered on prorate basis).
VII	Certification for Good Agriculture Practice (GAP), including infrastructure * ##		Rs.4000/- per acre.
VIII	Support system for Grapes (trellis, telephone, bawar and other system etc. *	Permanent structure made up of MS angles and stainless steel wire.	Rs. 1,50,000/- per acre

S.No.	Item	Description	Admissible Cost
IX	Plastic Mulching * ##		Rs.12800/- per acre and Rs.14729/- acre for hilly areas
X	Bed Preparation Cost in the cases requiring Soil replacement #	Protected Cultivation projects only in cases involving removal and replacement of top soil by red soil or cultivation is done on media/Pots/ Concrete bed	Rs.100/- per Sq. m.

Components categorization:

* Commercial Horticulture, within overall cost ceiling

Protected Cultivation, within overall cost ceiling

Over and above overall cost ceiling

Any other add on component as may be decided by Project Approval Committee for inclusion of new item(s) may be suitably incorporated from time to time.

3. Rationale for justification for taking up the proposed project under the scheme No.1 and its components.

5.Project details

5.1	**Agro-climatic suitability**	

5.1.1. Origin, History, and Distribution

1. Origin of the crop and its introduction into India:

Aonla or Indian gooseberry (*Emblica officinalis* Gaertn. Syn. *Phyllanthus emblica*) is one of the important indigenous fruits of Indian subcontinent, known for its medicinal and therapeutic properties and considered as a wonder fruit for health conscious population. It has been grown and known in India for last more than 3500 years. In fact, it finds a special mention in ancient Indian text 'Ayurveda' by Saushruta, the father of ancient medicine (during 1500 BC-1300 BC). Naturally growing trees of aonla have been reported from India, Sri Lanka, Cuba, Puerto Rico, Hawaii, Florida, Iran, Iraq, Java, West Indies, Trinidad, Singapore, southern Thailand, Pakistan, Malaya and China and Panama Canal regions. However, its cultivation is more common in India, particularly in the state of Uttar Pradesh where it is cultivated in the districts of Pratapgarh, Raibareli, Jaunpur, Sultanpur, Banda, Kanpur, Agra and Mathura districts. The major concentration of aonla cultivation is in Pratapgarh district. The natural distribution of wild aonla is found on the Himalayas, Chota Nagpur, Bihar, Orissa, West Bengal, North Circars, Deccan, Karnataka and in Western Ghats.

2. Distribution of crop across the country

In India, the homeland of aonla, domestication was first started in Varanasi (earlier known as Benaras) district of Uttar Pradesh with the initiative of Maharaja of Kashi. Banarasi, a superior genotype was selected from the wild aonla trees available in large number in the nearby Vindhyan hills. Authentic information regarding its cultivation dates back to 1881-82 in the Partapgarh district of Uttar Pradesh. The ailing state owner of the district (King) was advised for regular consumption of aonla fruit in one way or other. As per information available, few aonla trees were introduced from Varanasi and few from Gujarat. Those brought from Varanasi were named as 'Banarasi' and those brought from Gujarat were known as Francis and later on as Hathijhool (because of its drooping branches). A seedling of Banarasi, with prolific bearing and flat fruits was named as Chakla and now it is known as Chakaiya.The new cultivars, agro-techniques and commercial orcharding in the country were promoted based on research and development work at Narendra Dev University of Agriculture and Technology (NDUAT), Kumarganj, Faizabad, Uttar Pradesh, India. Aonla was also included in All India Coordinated Arid Fruit Improvement Project and cultivars developed at NDUAT, Faizabad were planted at the on different SAUs and ICAR institutes as varietal trial:

5.1.2.Agro-climatic / Horticultural zones including Rainfall, temperatures at critical stages and suitability of the project *(Not applicable to standalone PHM projects)*

Parameter	**Recommended@**	**Project location parameters#**	**Remarks / deviations**
1. Climate	Tropical and sub tropical		
2. Altitude	Up to 1800 msl		
3. Climateric / Non Climateric	Non-climacteric		
4. Thermosensitivity of crop	Aonla flowers best with average day temperature of 27°C (18^0 c to 32^0c). Temperature below 0^oC is injurious for the plant. Temperature above 40°C and moisture stress affect the growth, flowering and fruiting of aonla.		
5. Photosensitive	Not applicable		
6. Temperature range	0-45°C		
1. Mean monthly / Average temperature for growth and fruiting	18-35°C		
2. Av.Max.temperature	36-40°C		
3. Av.night temperature	15-25°C		
4. During fruiting phase	22-35°C		
a) Flowering	18-30°C		
b) Fruiting	30°C		
c) Maturity	25-36°C		
7. Rainfall / Water resources	400-2500 /annum		
8.1 Land preparation	Summer months; needs less water / rain		
8.2 Flowering	Spring(February- March) ; needs no water		
8.3 Fruiting	Rainy and winter season		
8.4 Maturity	Winter		
8. Humidity	Humid summer and dry winter		
1. Vegetative growth	78-92%		
2. Shoot/Flush maturity	55-60%		
3. Flowering	70-80%		
4. Fruiting	80-90%		
5. Maturity	65-75%		
6. Season	Winter		
9. Winds during crop season	8-15 km/h		

1. Wind velocity	Mild		
2. Wind direction	Westerly winds during fruit development and maturity. Easterly wind direction during fruiting results in to more attack of pests.		
10. Fruit quality attributes	09-11°B TSS and 1.92-2.20% acidity ,vitamin c 300-600mg/100g		
11. Harvesting Season	October-January (North and Central India) December-January (in South India)		

@ Note: Recommendations of CHES (ICAR-CIAH), Godhra, Gujarat

Provide source (could be IMD/Agric. Univ/State Govt.) and web link if possible

Risk management/ Deviation Management if any:

Conclusion: Whether project crop is recommended for the project location	**Yes/No**

5.1.3. Soil type-composition required and that of project suitability

(Not applicable to standalone PHM projects)

	As recommended aonla CHES (ICAR-CIAH) Godhra, Gujarat	Project location data as per latest Soil health test	Deviation if any and Management	Date on which soil health is tested and the name of the Institute
Soil type	Fertile alluvial soil to marginal land			
Texture	Sandy loam, clay loam			
pH	7.5-9.5			
Organic carbon	0.4-1%			
Electrical conductivity	< 0.2-0.7 dSm^{-1}(can tolerate up to9 dSm^{-1}			
Chlorine	----			
Sodium	low			
Potassium	150kg/ha			
Nitrogen	130kg/ha			
Phosphorus	12 kg/ha			

@ Recommendations of CHES (ICAR-CIAH), Godhra, Gujarat

#: Provide details of Soil Test Laboratory (should be that of Agriculture Dept/ Agric.Univ/ Central or State Government) where Soil is tested with contact details of Head of Laboratory/ Analyst with telephone and mobile details and weblink if possible. A self-attested copy of the laboratory results should be submitted in case project is qualified for processing for subsidy claim.

Whether project location is a problematic soil-Alkalinity/Salinity/Others: if yes.

1. Causes
2. Reclamation / Management/ Amendments proposed:

Conclusion: Whether project location soil is suitable for the crop / activity.	

5.1.4.Water/ Irrigation water Quality -requirements and that of project suitability
(Not applicable to standalone PHM projects)

	As recommended CHES(ICAR-CIAH) on Aonla, Godhra, Gujarat	Project location data as per latest Water Analysis test#
pH	7.5-9.5	
EC	Normal	
Total salt concentration,	Low	
Sodium Absorption Ratio (SAR)	Low to medium	
Bi-Carbonate	Nil	
Boron concentration	Medium	
Heavy metals	Nil	
Pesticide residue	Nil	

@ Recommendations of CHES (ICAR-CIAH), Godhra, Gujarat
#: Provide details of Laboratory (should be that of Agriculture Dept/ Agric.Univ/ Central or State Government) where water is tested with contact details of Head of Laboratory/ Analyst with telephone and mobile details. A self-attested copy of the laboratory results should be submitted in case project is qualified for processing for subsidy claim.

Conclusion: Whether project location water source is suitable for the crop / activity.	Yes / No

5.2. Project- Market viability of the Project

5.2.1. Commercial (and nutritive -where ever applicable) importance / significance, composition and uses.

The fruit is the richest source of vitamin C among the fruits except Barbados cherry and. It contains 500-1800 mg vitamin C, 0.2mg nicotinic acid, 1.2mg iron, 0.5g protein, 0.1g fat, 0.7g minerals, 2.0-3.4g fibres, 14-21.80g carbohydrate, 0.02g phosphorus and 0.05g calcium/100g fruit pulp. . The fruit contains chemical substance known as leucoanthocyanins (polyphenols), which retard the oxidation of vitamin C which make the fruit as rich source of vitamin C. Aonla is very popular for its medicinal properties mentioned both in *Ayurvedic* and *Unani* system of medicines. Fruit is acidic, cooling, refrigerant, laxative and diuretic. Dried fruits are useful in chronic dysentery, diarrhoea, diabetes, dyspepsia, cough, anemia and jaundice. Aonla and its preparations may be useful in piles, fracture, constipation, vomiting, nausea, diseases related to vision and eye, hick up, fever, jaundice, liver disease, skin disease and diabetes. The excellent nutraceutical and therapeutic values of fruit has great potentiality for processing into various post harvest products. It widely used in *Ayurvedic* medicine for making *Triphala* and *Chyavanpras*h.

5.2.2. Targeted market (s):

Domestic or International. In case of International market, the applicant has to refer APEDA export requirements and should specify compliance appropriately within the document. In case of domestic market specify the intended market briefly while more details are provided in marketing chapter.

1. Quality grades/ specifications/ kinds of products and their targeted Domestic/ International market.
2. Existing / Proposed Market linkages:
3. MOUs/ Contract documents / undertakings/ LoA if any
4. Target consumption centres/ key domestic markets
5. Export targets/ Plans if any
6. In case of export, details of volume to be exported / export destination / statutory norms of export destination should be provided in the DPR.

5.2.3. Statistics: India and State.

1. India: Area, Production and Productivity in the area, State and India for the last 5-10 years National picture

Year	Area in ha	Production MT	Productivity T/ha	Global Productivity data T/Ha
				India has highest productivity among aonla growing countries

Year wise data are not available

2. State wise picture- Top 10 producing states

State	**Area in ha**	**Production T**	**Productivity T/ha**
Uttar Pradesh	15750	63000	4.0
Gujarat	10050	30150	3.0
Tamil Nadu	5500	16500	3.0
Rajsthan	5000	6000	1.2
Maharashtra	4000	5600	1.4
Andhra Pradesh	3000	9000	3.0
Karnataka	1800	5400	3.0
Bihar	1350	4050	3.0
Haryana	600	3100	5.2
Mizorum	70	200	2.9
others	3000	8000	3.0
Total	50120	160000	3.0

3. Project State Picture (Mandatory)

Year	Area in ha	Production MT	States' contribution to Nation	Productivity T/ha	Gap in Productivity (T/Ha)		
					State Av.	National Av	Global Highest

Source:

4. Project State-district wise performance in the said crop producing districts in Last Year (Mandatory)

Area			Production			Productivity		
District	Area (ha)	% of State Area	District	Production (MT)	% of State Production	District	Productivity (T/ha)	Ranking

Source:

5. Project crop in the state: Time trend of Area, Production and Productivity (Mandatory)

District	Item	Current Year	CY-2	CY-3	CY-4
District.1	Area				
	Production				
	Productivity				
District.2					

Source:

6. Share of project Crop- in terms of Area and Production in overall fruits/vegetables.

Crop	Area		Production		
	Ha	%	MT	%	
Total		100		100	

Source:

7. Availability of Storage facilities in the project area / District / State Source: (Desirable Data)

Year	Commodity	Low cost storage structures			Cold storage			CA Storage		
		No.	Capacity	Capacity utilisation	No.	Capacity	Capacity utilisation	No.	Capacity	Capacity utilisation

Gap Analysis in Project Area

	Commodity / produce	Storage required in the area	Storage available in the area	Gap	Remarks

7.2.4 Clusters/ Zones

5.2.4.1. Crop clusters in the State (Mandatory)

Cluster	District	No.of villages	No.of farmers	Total Area
1				
2				
3				
4				

Source:

5.2.4.2. Crop Agricultural Economic Zones in the State / UT, if any (Desirable)

Cluster	District	No.of villages	No.of farmers	Total Area
1				
2				
3				
4				

5.2.5. Demand for the commodity: (based on the available data- minimum for the project area, district and the state)

Demand -Supply gap for the commodity

Unit	Demand	No.of growers		Supply / production	Gap	Remarks
		Nos.	Area			
Project area						
District where project is located						
State						
Country						
Globally						

Note: Applicant may take the help of District Horticulture Officer.

5.2.5. A. Projections of production, productivity, targets for domestic and export market (Desirable)

Year	Production	Productivity	Local Market	Value in Rs.	Terminal market	Value in Rs.	Export Market	Value in Rs.

5.2.6.Global producers- Country, Area, Production, Productivity and global market share for the last 5-10 years

Major producing country	Production (MT)
India	
Pakistan	
Srilanka	
Mynmar	
Nepal	

5.2.7. International trade market and potential:

Country	2015-16		2016-17	
	Quantity (MT)	Rupees (Lakh)	Quantity	Rupees (Lakh)

It is not a crop of major importance, though some amount is exported to Maldives and Gulf countries but statistics are not available.

.2.8. Seasonality matrix of the fruit (Desirable Data):

Seasonality matrix of the crop with reference to other fruits / vegetables

Crop	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Aonla												

Lean Season

Peak Season

Demand and Supply issues specific to project area

5.2.9 Price variation of Commodities at State / UT Capital or at a Major Fruit & Vegetables Market

A.At local Market

	Local Market: 1 Unit=Rs. Per Qtl/MT/Kg											
Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec

B.At nearest / Major Terminal Market

Year	Major Terminal Market: Rs/kg											
2014	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Vadodara	-	-	-	-	-	-	-	-	20	15	15	20
Lucknow	-	-	-	-	-	-	-	-	20	10	10	10
Hyderabad	-	-	-	-	-	-	-	-	20	15	15	10
Dehradun	-	-	-	-	-	-	-	-	30	20	20	20
Delhi	-	-	-	-	-	-	-	-	30	20	20	20
Guwahati	-	-	-	-	-	-	-	-	30	15	15	15
Jaipur	-	-	-	-	-	-	-	-	30	30	20	20
Jammu	-	-	-	-	-	-	-	-	30	20	10	10
Kolkata	-	-	-	-	-	-	-	-	30	20	20	20
Patna	-	-	-	-	-	-	-	-	30-	20	20	20
Raipur	-	-	-	-	-	-	-	-	30	20	15	15

Projected prices of project produce (If possible)

	Market: …… Unit=Rs. Per Qtl/MT/Kg											
Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec

Source: Could be applicants' own assumption / horticulture expert etc.by giving justification

5.2.10.Balance sheet of commodity in the State / District (Desirable Data/ Voluntary)

	Year:								Qty: 000Tons			
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Stored/ Carry in												
Fresh Production/ Arrivals												
Imports												
Availability												
In LT Storage												
Consumption												
Exports												
Post Production losses												
Total Usage												
Carry out												

Source:

Note:

5.2.11. Whether transportation infrastructure is available.

1. Mode of transportation / arrangement:

2. Whether cold chain facility available locally if so details of service providers and contact person name.

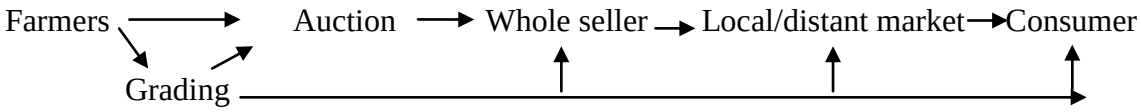
5.2.12. Value Addition scope/ potential

Aonla has tremendous scope for value addition through processing. protocol for various post harvest product have been developed. Many post harvest products like morabba, chatni,squash, candy toffee shreds, sauce, aonla pulp; Ayurvedic medicines as chvanprash, ttrifla, syrup, powder and in coslmetic industry as shampoo, hairoil, dyes etc Such processed products not only increases the product mix but also increases the duration of availability of the crop and reduces post harvest losses. Aonla is perishable fruit like other fruit crops. Generally farmer's pack their produce in gunny bags during transportation and marketing in bulk. Perforated plastic lined bags and CFB boxes as well as polyethylene sleeves packaging have good scope for reducing post harvest loss in this crop. ICAR-CIAH has designed a CFB box for packaging and developed processing protocols for various processed products such as candy, aonla juice, etc.

5.2.13. Central and State Government policies to promote aonla:
(towards its promotion, area expansion and organised marketing, processing and export).
The applicant should mention about the government initiatives like establishment of aonla export zone, region specific fruit belt for aonla, schemes to promote aonla, Development infrasturctures for aonla crop in detail.

5.2.14. Value chain in aonla

Ideal value chain



5.2.14 Existing value chain: The applicant should reflect the existing value chain and marketing channels of aonla in project area or state

5.2.15. Proposed Business Strategy by the Applicant for Marketing and Market viability

5.3.Financial Viability of the Project
(To be prepared and certified by Project Finance Expert on each page)

5.3.1: Due Deligence Status

	Date of Due Deligience		Remarks
1	Examination of CIBIL report	Yes/No	
2	Credit rating / scoring is done	Yes/No	
3	Whether name of promoters/company appearing in the list of- a) RBI defaulter list b) RBI willfull defaulter list c) ECGC SA list	 Yes/No Yes/No Yes/No	
4	a)Verfication of CERSAI (Central Registry of Securitisation Asset Reconstruction and Security Interest)	Yes/No	
	b) In case of company whether financial data verfied with ROC .	Yes/No	

5.3.2.Project Cost (Rs in Lakhs) – (subitems are to be decided based on need)

Scheme Component	Items	Sub- items	Capacity/ Area/ spacing Etc.	Units/ Numbers	unit cost	Cost	Cost as per NHB norms
Open field Cultivation	Cultivation Expenses	Planting material					
		Input cost (Labour, Manure & Fertilisers, pesticides etc.)					
		Others					
	Irrigation	Tube well/ bore well/ Open well (Nos.)					
		Cost of Pipeline (Length, Size & Material)					
		Water harvesting structure / Water tank min. 300 microns					
		Non lined ponds/tanks					
		Others					
	Drip / Sprinkler						
	Civil Infrastructure	Functional pack house					
		Store & Pump house (Area in sq.ft with size)					
		Labour room & go					

		down (Area in Sq.ft with size)					
		Others					
	Farm Mechanisation (AC)	Tractor upto 20 BHP					
		Power Tiller	HP				
		Equipments- driven by Tractor/ Power Tiller					
		Mulch laying machine					
		Self-propelled hort. Machinery					
		Other tools and equipment's as per Sub Mission on Agriculture Mechanisation (SMAM)					
		Others					
	Land Development	Soil levelling / Digging/Fencing etc.					
		Others if any					
	Land if newly purchased but not before one year from date of sanction of loan (indicate year)						
	Support system for Grapes						
	Vermi Compost Unit						
	Certification of Good Agri Practices Good Agricultural Practices (GAP) including infrastructure (AC)						
	Plastic Mulching						
	Others						
	Grand Total						
Scheme			Capacity/ Area/ Spacing etc.	Units/ Number	Likely /Unit cost	NHB Norm	
Integrated PHM	2. Integrated PHM						
	3.1.Pack House						
	3.2.Integrated Pack house						
	3.3.Pre-cooling unit						
	3.4.Cold Room (Staging)						
	3.5.Mobile Pre-cooling unit						
	3.6.Ripening Chamber						
	3.7 Primary Processing						
	3.8.Retail outlet (environmentally controlled)						

Summary of Project Cost

		Project Cost	Max.possible NHB support (self-appraisal)
1. Open field condition	With add on components		
	Without add on components		
2. Integrated PHM			
21. Pack house			
2.2. Pre-cooling unit			
2.3. Cold Room (Staging)			
2.4. Primary Processing			
2.5. Refer Van			
2.6. Retail outlet			
Grand Total			

5.3.3 Means of Finance (Rs.in Lakhs)

S.No	Item	Components			
1	Promoters share				
2	Bank/FI Term loan				
3	Un secured loan/VCA				
	Total				

5.3.4. A Information on subsidy available under different schemes:- (For information)

	Subsidy from NHB				
	Subsidy from State	*			
	Subsidy from Centre	*			
	Subsidy from other sources	*			
	Total				

5.3.5.Hypothecation Security if any:

5.3.6.About Bank/ FI: Name of the Bank/FI, branch and its code identified for Term loan and Rationale

Name of Bank/ FI	
Bank/FI Branch Address	
Bank/FI Branch contact Number	
IFSC code	

5.3.7.Investiment in Horticulture Sector

Bundles of opportunities in form of subsidies available in the cultivatioin of aonla like othe fruit crops viz., orchard establishment, nursery/propagation, farm machineries & harvesting tools as well as low cost storage structures etc. This crop also attracting the investors with the involvement of new sp./ varieties and value added possibilities in this crop.

5.3.8 Projected / existing operational profitability of the Project : (Rs. In Lakhs)

	Estimated projections							
	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8
Capital								
Reserves								
Intangibles								
Tangible Net Worth								
Net Working Capital								
Current Ratio								
Net Sales								
Op. Profit								
Net Profit Before Tax								
Net Profit After Tax								
TOL/ TNW								
Debt-equity ratio								
Depreciation								
Dividend								
Retained Profit								

Justification for the above (wherever figures are on higher side)

NOTE:- In case of existing business / project, the promoter has to provide the audited data for the last three years apart from estimated and projected data for covering the entire repayment period.

5.3.9 Project Financing:

1) Rate of Interest :

2) Percentage of Term loan against total project cost

3) Internal Rate of Return (IRR):

4) Cost of Production and Profitability (Annexure)

5) Yield and Sales Chart (Annexure)

6) Proposed Balance Sheet: (Annexure)

7) Proposed Cash flow Statement for repayment period (Annexure)

8) Proposed Profit & Loss Account: (Annexure)

9) Proposed Repayment of Term loan and Schedule (Annexure)

10) Break even Analysis (Annexure)

11) NPV (Net Present Value)

12) Economic Rate of Return

13) Depreciation

5.3.9 Sensitivity analysis of the project.

Base Case	2018-19 (First Full Year of Operation)				
Case I	Decrease in capacity utilization by 10%.				
Case II	Decrease in Sales by 10%.				
Case III	Increase in Raw Material Cost by 10%				
	Base Case	Case I	Case II	Case III	
PBIDT					
PBT					
PAT					
Min DSCR					
Max DSCR					
Overall DSCR					

5.3.10 Key Financial Parameters for the proposal:

Sl. No.	Ratio	Benchmark	As calculated by Project Finance Expert				
			1st yr	2nd yr	3rd yr	4th yr	5th Yr
1.	Current Ratio other than export units	1.25:1					
2.	CR-Export units	1.10:1					
3	IRR /BCR						
4	DSCR*	1.50:1					
5	Average DSCR						
6	Debt to Equity Ratio i.e DER	3:1					
7	TOL/TNW	4:1					
8	Promoters Contribution	25% minimum					
9	Break Even Point	Lower the % is better					
10	Security Coverage Ratio	More than 100% of Loan Amount					
11	Repayment period	Up to 7 Years excluding moratorium, but not to exceed an overall tenor of 10 years					

5.3.11 Statement of Assets & liability as on……...

1. Immovable Assets

(Rs. In lakh)

Sl.No	Description	Extent	Location	Face value	Market value
1	Land				
2	Building				
3	Plant & machinery				
4	Commercial plots				

2. Movable Assets

Sl.No	Description	Model	Face value	Market value
1	Car/Scooter/Truck/Bus/Mobile phone			

3. Bank/FI balances and cash

Sl.No.	Name of the institutions	Date of opening	Face value	Market value/Present value

4. Shares & debentures

Sl No	Name of the Company/Institutions	Date of purchase	Face value	Market value

5. Investment in business & other associates concern

Sl No	Name of the Company/Institutions	Date of Investment	Face value	Market value

Total assets…….....

1. Liabilities

Sl.No.	Nature of the loan	Name of the institution	Date of loan	Face value	Market value/ Present value

Total liabilities…….....

Net of assets & liabilities…….....

Date: Signature of the Promoter/Guarantors/Directors /partner

5.3.13.Risk Analysis& Management

A. Promoters & Management Risks:
B. Project Completion and Operational Risk:
C. Other Risks:

Risk	Recommendation	Proposed management
Excess production / Glut situation in Market	There should be unit for value addition/storage	
Crop failure	Crop insurance	
Price volatility-low prices	Storage facility to stabilize price	
Pests and Diseases	Standard protocols should be followed	
Natural calamities- fire, cyclone, Floods etc.	Insurance	

5.3.14 Farm record keeping/ Maintenance proposed

Records of all purchases (seed for intercrop, agro-chemicals, media, etc.), observation of data (flowering dates and fruit set per cent, marketable yield etc.), labourerr engagement and attendance, sales, pest and disease outbreaks, permanent and temporary stocks (including species wise seedling stocks) and movement register are required to be maintained up to date. Various records of expenditure and income are recorded in different book viz., purchase book, sales book, ledger, cash book, dispatch register, monthly crop calendar, elite plant identification etc.

5.4: Land development and Crop husbandry

5.4.1.Land development: (in case of waste/ barren land)

The bushes should be removed. Field should be deep-ploughed and levelled. Under sloppy lands, contour system should be followed. Pits of size 1m x 1m x 1m should be prepared in summer followed by filling with good substrate (top soil+ FYM + sand in black cotton soil). If necessary, pit soil should be replaced with good soil. (For details, recent publications of CHES-CIAH should be referred).

5.4.2. Selection of Quality Planting Material

1.Recommended and popular Cultivars-varieties/hybrids, their specific characteristics, requirements and yields and list of reputed /accredited Nurseries

Recommended and popular cultivars/ varieties/ Hybrids State wise	Name of variety / Hybrids/ cultivar (with potential yield)
Bihar	NA-7, NA-6, Chakaiya, Banarasi
Uttar Pradesh & Uttarakhand	NA-4, NA-5, NA-7, NA-6, Chakaiya, Banarasi, NA-10
West Bengal	Banarasi, Chakaiya, NA-7
Punjab and Haryana	Goma Aishwarya, NA-7, NA-6, Chakaiya, Francis, Laxmi-52
Gujarat and Maharashtra	Goma Aishwarya, NA-7, Anand-1, Anand-2
Classification of cultivars based on crop maturity	
Early	NB-9, Krishna, Banarasi, Goma Aishwarya
Mid	Francis, NA-7, Anand -2, Anand-1
Late	Kanchan, Chakaiya, NA-8, BSR-1, NA-6
Classification of cultivars / Varieties/ Hybrids based on purpose	
Powder	Chakaiya, Kanchan, Anand-1 and Anand -2
Murabba and Candy	Banarasi, NA-7 and NA-4, Laxmi-52
Pickle	BSR-1 and BSR-2

2.Cultivar/Hybrid/Variety / Planting material Selected:

Cultivar/Hybrid/Variety / Planting material	Parentage	Area	Medium/ High/ Ultra High density	Requirement Quantity

3.Method of Propagation / technology

Budding/ Grafting

Method recommended by ICAR-CIAH	Budding/grafting
Proposed method under the project	Patch budding/Softwood grafting
Do's and Don't's proposed / taken in propagation	Select healthy scion for propagation Maintain good health of plants in nursery Ensure proper root development in the saplings Removal of budding tape after successful union as well as removal of root stock sprouts
Expert guiding the project	

Source: Singh, R. S. and Krishna H. 2014. Nursery Management for Production of Quality Planting Materials. In: Propagation of Horticultural Plants: Arid and Semi-arid Regions (Eds. Singh, R. S. and Bhargava, R). New India Publishing Agency, Delhi, India. pp. 91-112. Technical bulletins on aonla, pub. CIAH, Bikaner, Rajasthan

4. List of Nurseries having Virus Indexing: Not required in aonla

5. List of NHB accredited Nurseries : availability of quality seeds / planting material.

ICAR-CIAH, Bikaner , ICAR-CAZRI, Jodhpur, PAU, Ludhiana (Punjab)
ND University of Agriculture & Technology faizabad
ICAR-CISH, Lucknow
CHES (ICAR-CIAH), Godhra, Gujarat

6. List of reputed / authorised store / Nursery from where quality seeds / planting material is planned to source in the project:

7.Planting material-source, quality and suitability

1. Proposed cultivar / variety	
2. Criterion / Rationale for Selection	
3. Nursery / Shop from where seeds/ planting material is procured/ purchased	Name of Nursery/ Shop: Proprietor Name Contact Number:
4. Whether variety/ hybrid/ cultivar registered under Section 39 (2) of The Protection of Plant Variety and Farmers Right Act, 2001 (PPVFR Act)	
5. Authority which provides compensation to the farmers in case a registered variety does not perform as per the claim made by the breeders.	Registrar General, PPV & FRA is the designated officer for redressal of Public Grievances and can be addressed to: Registrar General Protection of Plant Varieties and Farmers' Right Authority S-2, A Block, NASC Complex, Opp. Todapur Village New Delhi -110012
6. Applicability of Seed Act and any State Act on nursery/ planting material	
7. Authority which provides compensation to the farmers in case a registered variety does not perform as per the claim made by the breeders under Seed Act / State Nursery Act if any	
8. Parentage if known	
9. Original manufacturer / Source of planting material	
10. Name of Tests with date and lab-conducted to assure pest and disease free ness of seeds/ propagation by the nursery	
11. Whether the planting material is imported. If Yes, whether plant quarantine and disease free certification was done	

5.4.3.	Orchard/ Site planning Lay out and management / Sowing	

5.4.3.1. Planning of orchards / Site establishment and layout systems / Types of orchards-

Square, rectangular, Hedgerow, double hedgerow high density planting can be adopted

As recommended by CHES (ICAR-CIAH), Godhra, Gujarat	1. Singh A. K., Singh Sanjay, Hiwale, S. S., Appa Rao, V. V. and Joshi, H. K. (2014). Production technology of aonla under rainfed conditions of western India.Pub CHES (ICAR-CIAH), Pp.1-36. 1. Singh, A. K., Singh. Sanjay, Appa Rao, V. V., Meshram, D. T, Bagle, B. G. and More, T.A. (2010). High density planting system in aonla. Pub. CHES (ICAR-CIAH), Pp.1- 15. www.ciah.gov.in
Action taken / proposed by the applicant	
Points of Deviation if any and justification	

5.4.3.2. Land preparation including pit preparation

As recommended by ICAR-CIAH	1. Singh A. K., Singh Sanjay, Hiwale, S. S., Appa Rao, V. V. and Joshi, H. K. (2014). Production technology of aonla under rainfed conditions of western India.Pub CHES (ICAR-CIAH), Pp.1-36. **2.** Singh, A. K., Singh. Sanjay, Appa Rao, V. V., Meshram, D. T, Bagle, B. G. and More, T.A. (2010). High density planting system in aonla. Pub. CHES (ICAR-CIAH), Pp.1- 15. www.ciah.gov.in
Action taken / proposed by the applicant	
Points of Deviation if any and justification	

5.4.3.3. Planting Season / time and density

	Recommended @	Proposed	Remarks in case of deviation
Planting Season / Time	Monsoon season		
Spacing	8m × 8 m, 5 m × 5 m, 6 m × 6 m		
Plant density per Acre	As per spacing selected		
Planting Material treatment	Hardening of plants before planting		
Depth of planting	Earth-ball should be properly placed in prepared pit at 20-30 cm from collar portion		
Transplanting age	1-1.5 years		

@: Recommended by CHES (ICAR-CIAH), Godhra on Aonla,

5.4.3.4. Water and Nutrient Management

1. Water requirements, Source and irrigation methods

a. Critical stages for Irrigation and water required under Drip Irrigation(Please refer the mentioned publications for details)

Critical stages	**Proposed action**
Vegetative flushing	
Fruit set	
Fruit development	

b. Method of Irrigation: Surface (basin irrigation and drip irrigation)

Methods	Recommendation	Proposed practice	Remarks
Ring Basin	At fortnight interval require after fruit set to development stage		
Drip	For orchard establishment		

c.Water source, demand and availability

Water Source	Water Quality	Water Availability	Last Year consumption	Current Year demand

d.Water harvesting measures : *In situ* water harvesting, Full moon and half moon terracing, soil moisture conservation by mulching

2.Nutrient management

FYM 30-40 kg, Neem cake 2.5 kg, 1 kg N, 500gP, 500g K to mature tree per plant. However, actual will vary as per soil test report of the orchard.

Dated		Institute	

Soil Health Parameters	Recommended range	Proposed site	Remarks
Soil type	Alluvial sandy loam, clay loam soil		
Texture	Sandy loam		
pH	7.5-9.5		
Organic carbon	.5-1%		
Electrical conductivity	< 2 dSm^{-1}		
Potassium	150kg/ha		
Nitrogen	130kg/ha		
Phosphorus	12 kg/ha		
Chlorine	< 300 mg kg^{-1}		

As recommended ICAR-CIAH	ICAR-CIAH Publications(Technical bulletins on aonla) 1. Singh A. K., Singh Sanjay, Hiwale, S. S., Appa Rao, V. V. and

	Joshi, H. K. (2014). Production technology of aonla under rainfed conditions of western India.Pub CHES (ICAR-CIAH), Pp.1-36. 2. Singh, A. K., Singh. Sanjay, Appa Rao, V. V., Meshram, D. T, Bagle, B. G. and More, T.A. (2010). High density planting system in aonla. Pub. CHES (ICAR-CIAH), Pp.1- 15. www.ciah.gov.in
Action taken / proposed by the applicant	
Points of Deviation if any and justification	

Availability of Water and Nutrient management plan: Yes/ No

5.4.3.5. Intercultural operations including weed management

As recommended by ICAR-CIAH	ICAR-CIAH, Publication(Technical bulletins on aonla) 1.Singh A. K., Singh Sanjay, Hiwale, S. S., Appa Rao, V. V. and Joshi, H. K. (2014). Production technology of aonla under rainfed conditions of western India.Pub CHES (ICAR-CIAH), Pp.1-36. 2. Singh, A. K., Singh. Sanjay, Appa Rao, V. V., Meshram, D. T, Bagle, B. G. and More, T.A. (2010). High density planting system in aonla. Pub. CHES (ICAR-CIAH), Pp.1- 15. www.ciah.gov.in
Action taken / proposed by the applicant	
Points of Deviation if any and justification	

5.4.3.6. Plant canopy architecture management/ training and pruning

Aonla plants trained on the single main trunk up to 70 cm from ground level, 4 or 6 well-spaced and favourably located main branches are allowed to grow to make proper canopy. Pruning is not required in aonla. Criss cross, dried and infected branches should be removed. During initial years proper training is required for better canopy. For better fruiting proper aeration within the canopy is required. Unwanted branches should be removed timely to provide proper framework to the plant

As recommended by ICAR-	CIAH, Publications (technical bulletins on aonla) 1. Singh A. K., Singh Sanjay, Hiwale, S. S., Appa Rao, V. V. and Joshi, H. K. (2014). Production technology of aonla under rainfed conditions of western India. Pub CHES (ICAR-CIAH), Pp.1-36. 2. Singh, A. K., Singh. Sanjay, Appa Rao, V. V., Meshram, D. T, Bagle, B. G. and More, T.A. (2010). High density planting system in aonla. Pub. CHES (ICAR-CIAH), Pp.1- 15. www.ciah.gov.in
Action taken / proposed by the applicant	
Points of Deviation if any and justification	

5.4.3.7. **Use of Pollinators & Pollinizers**

Impact of pollinators in enhancing pollination and increasing yield and to provide supplementary income to farmers.

Item	Recommended	Proposed	Remarks
Name of Pollenizers	Two varieties should be planted together	Chakaiya x Francis, NA-7 x Krishna, Banarasi x NA-6, Kanchan x NA-6	
No.of pollenizers	Not applicable		

5.4.3.8. Use of Plant growth regulators (including waiting period): Generally in aonla, PGR is not required.

As recommended by ICAR-	ICAR-CIAH Publications (Technical bulletins on aonla) Aonla: In Hand book of horticulture edited by KL Chadha
Action taken / proposed by the applicant	
Points of Deviation if any and justification	

5.4.3.9. Flowering& Fruiting

Including Problem of unfruitfulness / Growth, fruiting habits and methods for inducing fruitfulness

Aonla has a tendency of regular bearing. However, few cultivars especially Banarasi is shy bearing cultivar due to less number of female flowers. In order to achieve flowering and fruiting year after year, timely application of recommended doses is required. For better fruiting cross compatible varieties should be planted together in aonla orchard.

As recommended by ICAR-	ICAR-CIAH Technical Bulletins on Aonla, 1. Singh A. K., Singh Sanjay, Hiwale, S. S., Appa Rao, V. V. and Joshi, H. K. (2014). Production technology of aonla under rainfed conditions of western India.Pub CHES (ICAR-CIAH), Pp.1-36. 2. Singh, A. K., Singh. Sanjay, Appa Rao, V. V., Meshram, D. T, Bagle, B. G. and More, T.A. (2010). High density planting system in aonla. Pub. CHES (ICAR-CIAH), Pp.1- 15. www.ciah.gov.in
Action taken / proposed by the applicant	
Points of Deviation if any and justification	

5.4.3.10. Integrated Pest and Diseases Management including Biological control and Food Safety

PLANT PROTECTION

The important insect- pests, their nature of damage in brief, and the strategies of management on aonla are given in the following paragraphs, which are effective, economical, and eco-friendly.

Pest and disease management

Aonla is generally free of any serious disease but the insect pest damage the crop considerably, especially when environmental conditions are very conducive. The important pests and diseases and available recommended control measures which were adopted for aonla under high density planting systems are mentioned herewith. The suitable, effective and economical IPM strategies for boosting up the production potential of the aonla crop under high density planting system was developed based on seasonality and their peak period of occurrence. They are as under:

Peak period of activities of the sucking pests (aphid and mealy bug) is February -March and July-August for defoliators and borers. Symptoms and nature of damage are described in brief.

Aphids (*Cerciaphis emblica*): Nymph and adults suck the cell sap from tender shoots, leaves, and devitalize the plants. The exude honeydew on which sooty mould develops.

Mealy bug (*Caloptilia vastator*): Nymph and adults suck the cell sap from tender shoots, leaves, and devitalize the plants.

Leaf twister (*Caloptilia acidula*): The caterpillar on hatching twists the leaf and feed within. In severe infestation plants show sickly symptoms.

Hairy caterpillar (*Euproctis flava*): The caterpillar on hatching feed voraciously and gregariously on tender leaf and defoliates the plants. The larvae later on migrate to entire plant and feed on leaves leading to marked defoliation.

Shoot gall maker (*Betousa stylophora*): The caterpillar on hatching enters into the shoots and feed within causing a gall on the tender shoots.

Fruit borer (*Virochola isocrates, Meridarchis scyrodes*): The caterpillar bore into to the fruits and feed within causing premature drop of the fruits during monsoon season. Maximum damage is caused during July and August.

Bark eating caterpillar (*Inderbela terraonis* Moore): The larvae bore usually at the joint between twig and main stem and tunnel straight downward. Presence of silken web comprising of excreta of larvae indicates the damage.

Management strategies of Pests

1-Orchard sanitation is effective for bark eating caterpillars and borers**.**

2-Inject petrol, Dichlorovos or CS_2 and plug the hole with mud for effective control of bark eating caterpillars.

3-Foliar application with Dimethoate (0.05%) or Monocrotophos followed by Endosulfan (0.07%) at tri-weekly interval control the overall pest effectively. However, based on the seasonality and their sequence in occurrence, insecticidal schedules involving tri-weekly application of Dimethoate (0.05%) alternatively followed by NSKE (5%) at 10 days interval along with Bavistin (0.1%) commencing from fruit set to fruit development has been found significantly better in reducing the incidence of borer and fruit rot in aonla.

Diseases

Rust (*Ravenaliia emblica***e**): Rust characterized by brown or brown to black, pustules on fruits in concentric ring also infects aonla. Spray with Wettable Sulphur (02%) or Mancozeb 75 w p (0.2%) manages the disease effectively.

Anthracnose (*Colletotrichum* state of *Glomerella cingulata*): Characterized by circular depressed, blackish brown spots on fruits with concentric rings having the center bearing

dark coloured fungal mass. For managing disease, spray with Mancozeb 75 w. p. (0.2%) or Cuman –L (0.3%),or Captaf (0.2%) or Chlorothalonil (0.2%) or Copper Oxychloride 50 w p at 0.3% concentration practices deep plugging and healthy cultivation.

***Penicillium* fruit rot** (*Penicillium indicum*): A post-harvest disease characterized by circular to irregular water soaked blotch with bluish grey fungal mass in the center with sporadic orange-red islands on fruits surface.

1. Collect and destroy the infected fruits.
2. Avoid injury to fruits while harvesting, handling or transporting or storing.
3. Before storage, dip the fruits in 10% Brine solution.
4. Pre harvest sprays (one week before harvesting) with Blitox, Bavistin or KH_2PO_4.

As recommended by ICAR-	ICAR- Technology/Technical/Extension Folders 1. Singh A. K., Singh Sanjay, Hiwale, S. S., Appa Rao, V. V. and Joshi, H. K. (2014). Production technology of aonla under rainfed conditions of western India.Pub CHES (ICAR-CIAH), Pp.1-36. 2. Singh, A. K., Singh. Sanjay, Appa Rao, V. V., Meshram, D. T, Bagle, B. G. and More, T.A. (2010). High density planting system in aonla. Pub. CHES (ICAR-CIAH), Pp.1- 15. www.ciah.gov.in
Action taken / proposed by the applicant	
Points of Deviation if any and justification	

Residue Analysis: Address and contact details of NABL approved laboratory proposed for testing pesticide residue:

5.4.3.11. Physiological disorders- causes, preventive and management measures.

Special Problem	Recommendation by ICAR/ CAU/SAU/SHU	Proposal / action taken by applicant	Points of deviation and justification
Flower and fruit drop	Fruit drop can be managed by proper soil moisture and application of FYM.		
Irregular fruiting	Use cross compatible varieties in orchard	Chakaiyax Francis, NA-7x Krishna, Banarasix NA-6, Kanchan x NA-6	
Internal fruit necrosis		Three spray of Borex@ 0.6 per cent at fortnightly intervals from September	

5.4.3.12. Special problems if any: No any in this crop

Special Problem	Recommendation by ICAR/ CAU/SAU/SHU	Proposal / action taken by applicant	Points of deviation and justification

5.4.5. Farm Structures and Farm Mechanisation

5.4.5.1. Farm Structures- Protected Cover- Structure, Design and Layout*(Not applicable in case of Open field condition project)*

5.4.5.2. Farm Mechanisation

Available Machinery and equipment's / implements

	Operations	Recommended	Available Machinery and equipment's / implements	Proposed use	justification
	Land preparation	Disc plough, MB plough			Removal of noxious bushes and breaking hard pan
	Weeding/ hoeing	Harrow			Weeds biomass incorporation in soil
	Levelling Planking	Leveller and wooden plank			Prepared land level for layout

Plant & Machinery proposed to be used or procured on outsourcing and on his own

	Operations	Recommended	Plant & Machinery proposed to be used	Out sourcing / own purchase	Cost	justification
	Fine levelling	Laser leveller		OS		
	Weeding/ hoeing and planking	Rotovator		OP		Soil preparation for inter crop sowing
	Basin cleaning	Power tiller		OP		Better aeration near trunk

5.4.6. Harvesting and Fruit / Flower care management

5.4.6.1. Harvesting season- Across India

State/UT	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Uttra Pradesh	√	√									√	√
Gujarat									√	√	√	
Bihar	√	√									√	√
West Bengal	√	√							√	√	√	√
Jharkhand	√	√									√	√
Uttarakhand										√	√	√
Punjab and Jammu										√	√	√
TN/Karnataka							√	√	√	√	√	

5.4.6.2. Harvesting season- Across the project state /UT

District/ Production area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

5.4.6.3. Harvesting stage based on purpose and market (local/distant market):

Aonla matures at different time period in country. Maturity can be judged by one of the criteria1) specific gravity (1.07to 1.10), 2) TSS/ Acidity ratio (5-6),3) colour of fruit surface (dull greenish colour to translucent,4)Fibre appeared on fruit surface and seed colour changed to brown.

5.4.6.4. Harvesting technology and Fruit care management

Global best practices	
As recommended by ICAR-	<table><tr><td>Maturity Index / determination</td><td>Fibre appearance on seed cover and seed change in brown colour</td></tr><tr><td>Technique</td><td>Harvested in the early morning hours by manually with the help of stairs</td></tr><tr><td>Devices</td><td>Individual fruit picking, No standard device is available</td></tr><tr><td>Skills and training</td><td>Trained man-power to grade the fruit according to variety and maturity status</td></tr><tr><td>Time/ Period</td><td>September- February</td></tr><tr><td>Handling</td><td>Optimum temperature during handling must be maintained</td></tr></table> www.icar.gov.in and www.ciah@nic.in
Relevant Photographs if any	
Action taken / proposed by the applicant	
Points of Deviation if any and justification	

5.4.6.5. Expected Yield / Acre and for the project area in a Year:

NA-7	80-120 kg plant^{-1}
NA-4	70-90 kg plant^{-1}
NA-5	95-100 kg plant^{-1}
Banarasi	60-70 kg / kg plant^{-1}
Chakaiya	75-80 kg plant^{-1}

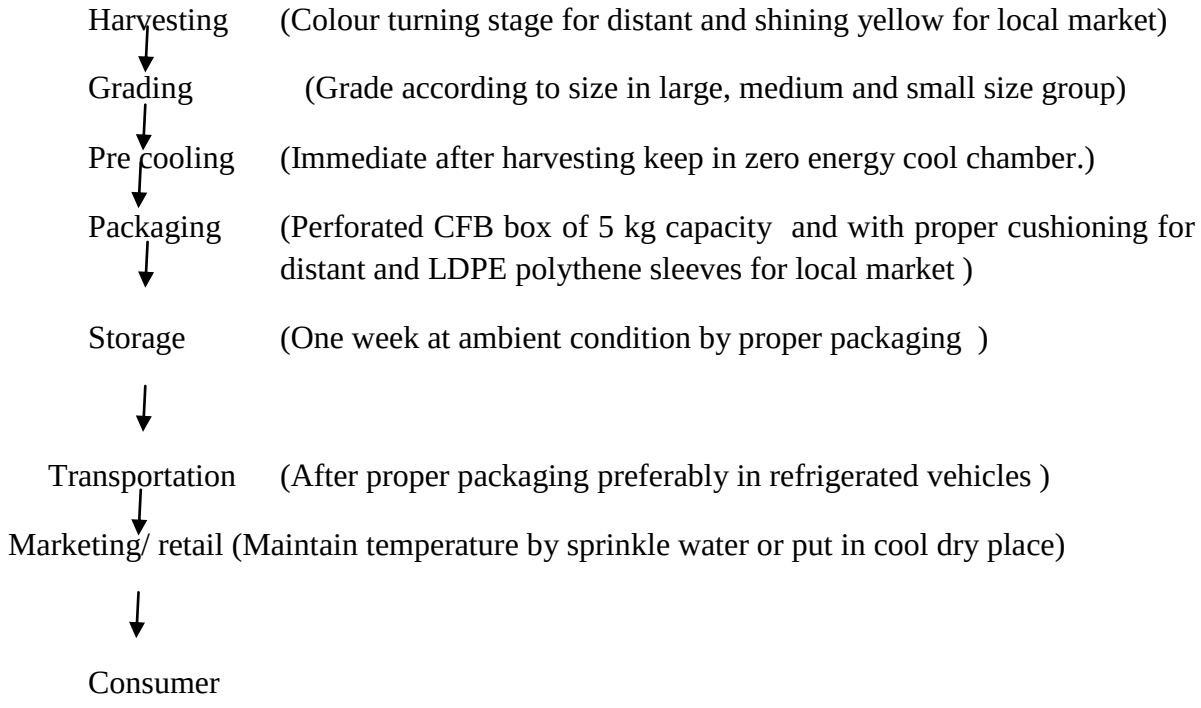
5.5.	**Post-Harvest Management**	

5.5.1. Post-Harvest infrastructure scenario in horticulture sector in the State and specially for aonla

Aonal is not considered as table fruit but variety of value added products is prepared. Its post harvest management starts from right stage of harvesting, handling to packaging and processing. In cool chain this crop requires pre-cooling, pack house, packaging, cool chamber, refer van and retail marketing structures.

5.5.2. Product / Process Flow chart- Illustrative

Standard flow chart



5.5.3. Lay out/ Floor Plan of Post-harvest operations

1. Sorting/Grading
2. Cleaning / Washing
3. Pre cooling
4. Packing
5. Transport

5.5.4. Post-harvest operations

1. Arrival Area

Activity	Recommended	Proposed practice	Remarks
Handling	Manual or improved harvester tools use for harvesting the mature fruits and carry in plastic crates		

2.Pre-Cooling (Also specify protocols to be followed)

Activity	Recommended	Proposed practice	Remarks
Pre-cooling	Hydro-cooling @ 10°C or air-cooling		

3. Cleaning / Washing – manual/mechanised; model/make, size, capacity and protocols.

Activity	Recommended	Proposed practice	Remarks
Cleaning/washing	To remove dirt and pesticides residues on fruit surface		

4.Sorting and grading including manual/mechanised; model/make, capacity and protocols.

Activity	Recommended	Proposed practice	Remarks
Sorting	Remove bruised, blemished, damaged, injured, split, misshapen fruit.		
Grading	Fruits can be graded based on fruit size depends upon varieties		
Packaging	CFB boxes of 6 kg capacity		
Storage	3°C		
Transportation	Refrigerated transport		

5.Pre-treatments (Agro-chemical treatment, etc.) and protocols.

Activity	Recommended	Proposed practice	Remarks
Dip treatment	1 % calcium nitrate		

6. Packaging and Labelling

(including steps/ processes, norms, protocols, manual/mechanised; model/make, capacity, turn over / hour; palletisation; wooden/plastic/ any other. In case of exports are you aware of compliance requirements as provided by APEDA- http://apeda.gov.in/apedawebsite/six_head_product/FFV.htm)

Activity	Recommended	Proposed practice	Remarks
Pre-treatment	-BARC protocol		
Packaging	CFB boxes of 2-5 kg and 7 ply		
Labelling	As required		
Traceability	QR code or barcode		

7.Mode of Transport including the requirement of Reefer vans

	Recommended	Present status	Gap / Remarks
Transport method			
Local Market	Open vans or pick ups		
District Market	Pick ups		
Distant Market	Trucks/ Train/Air		
Exports	Air		

8.Storage Cold room and Cold Chain

Activity	Recommended	Proposed practice	Remarks
Cold rooms	4-5 Tonne capacity and 4-6°C temperature		
Cool chain	Reefer vans		

5.5.5. Post-harvest Infrastructure – Integrated Post harvest Management

Type of project	New Project/ Expansion/Modernisation	
Location of the Project		
Man power employed (On rolls and on contract)		
Business model -	Rental, Captive, Part of Supply chain service, mixed	
Components of project submitted		
	Infrastructure under the scheme	Tick mark
	1.3Integrated PHM	√
	Pack House	√
	Pre-cooling unit	√
	Cold Room	√
	Primary Processing	√
	Refer van	√
	Retail outlet	√
Types of products to be handled	Fresh fruits & its value added products	

Note: In case the project includes any of the post-harvest infrastructure units. Only the relevant details and data sheet should be part of the DPR.

Certificates to enclosed during Market and Financial viability stage and JIT:

1. For Civil Works: Chartered Engineer (Civil) Certificate- component wise cost break up for Civil Works.
2. For Plant & Machinery: Chartered Engineer (Mechanical) Certificate on component wise cost break up for Plant & Machinery showing basic cost and Taxes separately.

5.5.5.1. **Pack house:**

1. . Rationale for the proposal
2. Stages / process flow chart.
3. Proposed project location:
4. Number of days proposed to be operational:
5. Raw Material:
    a. Types/ Quality of raw material- Grades/ Specifications
    b. Raw material availability and procurement: Details of own production if any and local production annually with 5 years data with future projections. Markets and farm areas of procurement and reliability. (Obtain past data from Local District Horticulture Officer. In the absence of scientific data, the authority can give estimated/projected data with stated assumptions)
    c. Catchment area:

S.No	Location of Catchment (Cluster- Primary / Secondary)	Name of Village, Block, District	Commodities to be sourced	Qty to be sourced

    d. Quality control/ assurance /testing
6. Pack house/ Sorting and Grading unit:
    a. Existing number of units, available capacity and utilisation in the project block, district and the State.
    b. Products and services and projections.
    c. Statutory requirements / licensing details if any.
7. Products, Bi products and services
    a. Various products – Quality, specifications etc.
    b. Annual output for the last 3 years in the project block, district and state.
    c. Projections for 7 years.
    d. Packing and labelling
7. Market :
    a) Quality grades/ specifications/ kinds of products
    b) Demand and Supply data for the products and services.
    c) Existing / Proposed Market linkage
    d) MOUs/ Contract documents / undertakings/ LoA
    e) Target consumption centres/ key domestic markets
    f) Export targets/ Plans if any
    g) In case of export, details of volume to be exported / export destination / statutory norms of export destination should be provided in the DPR.
8. Business model for the unit.
9. Source of Technology
10. Pack house unit: Type and Lay out (show the drawing)
11. Technical standards-Civil infrastructure and Plant and Machinery, accessories: Refer NHB guidelines on Technical Standards (Proposed Design, layout and Photographic evidence certified by charter engineer is required to be submitted in case the project is considered for processing)

Plant & Machinery	Recommended technical standards	Proposed	Make	No.of units	Unit cost	Total cost
Pack house	Shady but full ventilated area for performing grading, sorting and packaging					

13. List of Manufacturers / Suppliers of Plant and Machinery (enclose quotations during Market viability and Financial viability stage)

Plant & Machinery	Manu-facturer	Offer product Technical Specifications	Compliance with the NHB standards	Quotation cost	Dealers location	Quotation is in possession of the applicant

14. Protocols

Activity	Recommended	Proposed practice	Remarks
Grading sorting packaging place	Dry & cool place for extension of shelf life		

15. Compliance to relevant BIS code and standards- Electrical, Mechanical- Yes/No.
16. Requirement and Availability of
    a. Managerial manpower
    b. Technical manpower
    c. Skilled manpower
    d. Un skilled manpower

17.Data sheet

5.5.5.2. **Pre-cooling unit**

1. Rationale for the proposal
2. Stages / process flow chart.
3. Proposed project location:
4. Number of days proposed to be operational:
5. Raw Material:
    a. Types/ Quality of raw material- Grades/ Specifications
    b. Raw material availability and procurement: Details of own production if any and local production annually with 5 years data with future projections. Markets and farm areas of procurement and reliability. (Obtain past data from Local District Horticulture Officer. In the absence of scientific data, the authority can give estimated/projected data with stated assumptions)
    c. Catchment area:

S.No	Location of Catchment (Cluster- Primary / Secondary)	Name of Village, Block, District	Commodities to be sourced	Qty to be sourced

    d. Quality control/ assurance /testing
6. Pre-cooling unit:
    a. Existing number of units, available capacity and utilisation in the project block, district and the State.
    b. Products and services and projections.
    c. Statutory requirements / licensing details if any.
7. Products, Bi products and services
    a. Various products – Quality, specifications etc.
    b. Annual output for the last 3 years in the project block, district and state.
    c. Projections for 7 years.
    d. Packing and labelling
7. Market :
    a) Quality grades/ specifications/ kinds of products
    b) Demand and Supply data for the products and services.
    c) Existing / Proposed Market linkage
    d) MOUs/ Contract documents / undertakings/ LoA
    e) Target consumption centres/ key domestic markets
    f) Export targets/ Plans if any
    g) In case of export, details of volume to be exported / export destination / statutory norms of export destination should be provided in the DPR.
8. Business model for the unit.
9. Technology / Source/ Company/Make
10. Pre-cooling unit: Type and Lay out (show the drawing)
11. Technical standards-Civil infrastructure and Plant and Machinery, accessories: Refer NHB guidelines on Technical Standards (Proposed Design, layout and Photographic evidence certified by charter engineer is required to be submitted in case the project is considered for processing)

Plant & Machinery	Recommended technical standards	Proposed	Make	No.of units	Unit cost	Total cost
Water tank	Dipping of harvested fruits at 10^0C water for 15 minutes		Local	At least two units		

12. List of Manufacturers / Suppliers of Plant and Machinery (enclose quotations during Market viability and Financial viability stage)

Plant & Machinery	Manu-facturer	Offer product Technical Specifications	Compliance with the NHB standards	Quotation cost	Dealers location	Quotation is in possession of the applicant

13.Requirement and Availability of

e. Managerial manpower
f. Technical manpower
g. Skilled manpower
h. Un skilled manpower

Reference Data Sheet

#	Component: Pre-cooling unit	Description
1	Produce to be pre-cooled	Name the produce types to be handled.
2	Unit Package load	Specify packaging used- Pallet, Boxes, others.
3	Pre-cooler volumetric capacity	Provide pre-cooler physical volume in cubic meters. Specify the (L x B x H) of pre-cooling unit in metres
4	Cooling System used	Describe type of precooling - forced-air cooling, hydro-cooling / icing / vacuum cooling / room cooling.
5	Temperature and RH levels.	Temperature in degree Celsius and relative humidity in % designed for.
6	Pull down time (batch time)	Time duration per batch to bring the initial product temperature to the storage temperature.
7	No of batches planned in a day	List the number of batches planned per day.
8	Refrigeration Load	Estimated refrigeration load in kW.
9	Insulating material used	Type of insulating material, thickness and 'U Value'.
10	Evaporator/Chiller make	Maker name and model of the evaporator/chiller unit.
11	Air flow & static pressure.	Pre-cooler air flow in cubic meter per hour and static pressure in kPa.
12	No of fans	Specify the quantity of evaporator fans and connected motor power.
13	Water pump capacity	Specify the water flow in m^3
14	Motor rating	Specify the pump motor capacity in kW.
15	Make of condensing unit	Maker name and model of condensing unit.
16	Refrigeration of condensing	Specify the capacity of condensing unit in kW.

#	Component: Pre-cooling unit	Description
	Unit	
17	Condensing unit type	Specify the whether it is air cooled or water cooled.
18	Door details	Dimensions, insulation material and thickness of the door.
19	Controls Used	Specify the electronic controller for room temperature and relative humidity monitoring & control.
20	Refrigerant used	Technical name of refrigerant.
21	Total connected Power	Specify the total connected power in kW.
22	Power generating unit	Details of electric generator used (kVA). Capacity must be sufficient for operating pre-cooler and staging cold room.
23	Layout Drawing	Provide layout drawings of the pre-cooling unit including pack-house and staging cold room.

5.5.5.3.Cold room

1. Rationale for the proposal
2. Stages / process flow chart.
3. Proposed project location:
4. Number of days proposed to be operational:
5. Raw Material:
    a. Types/ Quality of raw material- Grades/ Specifications
    b. Raw material availability and procurement: Details of own production if any and local production annually with 5 years data with future projections. Markets and farm areas of procurement and reliability. (Obtain past data from Local District Horticulture Officer. In the absence of scientific data, the authority can give estimated/projected data with stated assumptions)
    c. Catchment area:

S.No	Location of Catchment (Cluster- Primary / Secondary)	Name of Village, Block, District	Commodities to be sourced	Qty to be sourced

    d. Quality control/ assurance /testing
6. Cold room unit:
    a. Existing number of units, available capacity and utilisation in the project block, district and the State.
    b. Products and services and projections.
    c. Statutory requirements / licensing details if any.
7. Products, Bi products and services
    a. Various products – Quality, specifications etc.
    b. Annual output for the last 3 years in the project block, district and state.
    c. Projections for 7 years.
    d. Packing and labelling
7. Market :
    h) Quality grades/ specifications/ kinds of products
    i) Demand and Supply data for the products and services.
    j) Existing / Proposed Market linkage
    k) MOUs/ Contract documents / undertakings/ LoA
    l) Target consumption centres/ key domestic markets
    m) Export targets/ Plans if any
    n) In case of export, details of volume to be exported / export destination / statutory norms of export destination should be provided in the DPR.
8. Business model for the unit.
9. Technology / Source/ Company/Make
10. Pre-cooling unit: Type and Lay out (show the drawing)
11. Technical standards-Civil infrastructure and Plant and Machinery, accessories: Refer NHB guidelines on Technical Standards (Proposed Design, layout and Photographic evidence certified by charter engineer is required to be submitted in case the project is considered for processing)

Plant & Machinery	Recommended technical standards	Proposed	Make	No.of units	Unit cost	Total cost
ZECC	For temporary storage (165 cmx 115 cm x67.5cm) for one quintal produce			Depends on Surplus produce quantity		
Cold storage	Maintain 2-5 ^{0}C temp with 85-90 % RH					

Reference Data Sheet

#	Component: Staging Cold Room	Description
1	Products to be stored	Name the produce types to be precooled and stored.
2	Temperature and RH levels.	Temperature in degree Celsius and relative humidity in % designed for.
3	Staging cold room dimension	Dimensions of the insulated cold room (L x B x H) in mtrs.
4	Insulation used	Type of insulating material and thickness along with 'U Value'.
5	Refrigeration Load	Total refrigeration load in kW.
6	Evaporator/Air-cooler make	Maker name and model of the evaporator/air-cooler unit.
7	Evaporator construction	Details for heat exchange coil, fans.
8	Air flow	Air cooler air flow in cubic meter per hour.
9	No of fans	Quantity of evaporator fans and connected motor power.
10	Make of condensing unit	Maker name and model of condenser unit.
11	Refrigeration of condensing Unit	Refrigeration Capacity of condensing unit in kW.
12	Door details	Provide the dimensions, insulation material and thickness of the door.
13	Controls Used	List the electronic controller for room temperature and relative humidity monitoring & control.
14	Refrigerant used	Technical name of refrigerant.
15	Total connected Power	Total electric Load in kW.
16	Layout Drawing	Provide layout drawings of the staging cold room unit including pre-cooler and pack-house.

All mandatory rules & regulations (BIS, ISO, IS etc.) relevant to the item must be complied with.

12. List of Manufacturers / Suppliers of Plant and Machinery (enclose quotations during Market viability and Financial viability stage)

Plant & Machinery	Manu-facturer	Offer product Technical Specifications	Compliance with the NHB standards	Quotation cost	Dealers location	Quotation is in possession of the applicant

13.Requirement and Availability of

a. Managerial manpower
b. Technical manpower
c. Skilled manpower
d. Un skilled manpower

5.5.5.4. Primary Processing unit

1. Rationale for the proposal
2. Stages in Primary Processing and flow chart.
3. Proposed project location:
4. Number of days proposed to be operational:
5. Raw Material:
    a. Types/ Quality of raw material- Grades/ Specifications
    b. Raw material availability and procurement: Details of own production if any and local production annually with 5 years data with future projections. Markets and farm areas of procurement and reliability. (Obtain past data from Local District Horticulture Officer. In the absence of scientific data, the authority can give estimated/projected data with stated assumptions)
    c. Catchment area:

S.No	Location of Catchment (Cluster- Primary / Secondary)	Name of Village, Block, District	Commodities to be sourced	Qty to be sourced

    d. Quality control/ assurance /testing
6. Industry:
    a. Existing number of units, available capacity and utilisation in the project block, district and the State.
    b. Products and services and projections.
    c. Statutory requirements / licensing details if any.
7. Products, Bi products and services
    a. Various products – Quality, specifications etc.
    b. Annual output for the last 3 years in the project block, district and state.
    c. Projections for 7 years.
    d. Packing and labelling
7. Market :
    a) Quality grades/ specifications/ kinds of products
    b) Demand and Supply data for the products and services.
    c) Existing / Proposed Market linkage
    d) MOUs/ Contract documents / undertakings/ LoA
    e) Target consumption centres/ key domestic markets
    f) Export targets/ Plans if any
    g) In case of export, details of volume to be exported / export destination / statutory norms of export destination should be provided in the DPR.
8. Business model for the unit.
9. Source of Technology

Civil infrastructure. Design, layout and Photographic evidence certified by chartered engineer is required to be submitted in case the project is considered for processing.

Facility / utility	Recommended	Proposed.	Remarks

10. Plant & Machinery: Rationale, Design, Capacity, After service, Warranty(Design, layout and Photographic evidence certified by chartered engineer is required to be submitted in case the project is considered for processing).

Plant & Machinery	Recommended technical standards	Proposed machinery standards	Make	No.of units	Unit cost	Total cost
Grader	For uniform size, shape, maturity crop produce in one lot					
Packing unit	Uniform CFB box line with polythene					

13. List of Manufacturers / Suppliers of Plant and Machinery (enclose quotations during Market viability and Financial viability stage)

Plant & Machinery	Manu-facturer	Offer product Technical Specifications	Compliance with the NHB standards	Quotation cost excluding Taxes	Dealers location	Quotation is in possession of the applicant

14. Requirement and Availability of
    e. Managerial manpower
    f. Technical manpower
    g. Skilled manpower
    h. Un skilled manpower

5.5.5.8. **Reefer Van**

1. Introduction

REEFER CONTAINER

Component Definition

A reefer container describes a multi-modal insulated container box with integrated refrigeration equipment. Unlike fixed body trucks, reefer containers can be released from the trailer chassis and handled as a unit load or be stationed on site for localised use as a temporary temperature controlled store pending subsequent operations. This allows the prime motive and/or trailer to be utilised for other carriage.

Component Description

A cost norm of Rs 6 lakh per 9 MT (20 foot container) as defined in code ISO/ TC 104, ISO 668:2013, ISO Code 22R1, 45R1 is applied as part of add-on components.

The component name "Reefer Container" is a temperature controlled unit whose insulating body is made of prefabricated insulating panels. The container is designed to be liftable for mounting on or unloading off a carrier-bed and has both forklift and top lift tolerant design. It has one fixed door at the end opposite to the reefer unit. The air transit pattern is bottom-up from floor to ceiling and the floor section is designed to allow air to circulate under the cargo. A fresh air intake system is in-built making it most suitable for horticulture produce.

Reefer container shall be designed for the full range of standard temperatures ranging from -25 degree Celsius to +25 degree Celsius. There shall be provision for temperature recording, capable to program set-point for either supply air or return air. As this equipment is a removable unit on a transport chassis, the corner posts must have locking facility to secure the container on its carrier.

Such container designs are of the same standard use for export and import of horticultural produce by sea and the design is considered optimal for long haul of perishables. All applicable safety norms shall apply to reefer containers.

Remarks/ Recommendations

The subsidy is intended to incentivise use of reefer containers in domestic cold-chain and beneficiary should be advised not to view this as an option to procure containers for international haulage.

There are multiple advantages to utilising such reefer containers, some of which are enumerated-

1. Dimensions are optimised for standardised pallet carriage; thereby allowing for standardisation in handling of perishable cargo in cold stores and in transit.
2. Available on demand as prefabricated units (in use globally) and hence is delinked with fabrication (delivery delays) as in case of fixed body reefer trucks.
3. Design incorporates fresh air venting which is necessary for perishable crops under long haul movement, for e.g. Himachal to Bangalore, a road trip of more than 9 days (equivalent to a trans-Atlantic crossing by ship). Venting also helps minimise ethylene build up (fruits and vegetables).

4. Design allows for multi-modal utility – by road / rail / ship. This will help develop and optimise goods movement by rail or coastal shipping without undue handling of goods.
5. Designed for plug-in electricity source and can be used as mini storage at various locations, pending further activity.
6. Refrigerated body can be dismounted / delinked from primary vehicle, freeing the prime motive or vehicle for other gainful work or other carriage options.
7. There are other design aspects that allow for innovative application of this component.

The reefer containers have computerised cooling system controls, enabling precise temperature control which is important in case of long haulage of horticulture goods. The air ventilation port allows for high respiring perishable goods to continue to have life sustaining oxygen, especially when in-transit in enclosed space for longer than 3 days. These ventilation ports are adjustable to suit the varied demand pattern of fresh fruits and vegetables. It must be noted, that lack of oxygen and build-up of respired CO_2 cause demise of horticulture goods when enclosed over long periods.

Photographs sourced from NCCD members

2. Rationale for the proposal
3. Product / Process flow chart.
4. Produce / Raw Material:
    i. Types/ Quality of raw material- Grades/ Specifications
    ii. Raw material availability and procurement: Details of own production if any and local production annually with 5 years data with future projections. Markets and farm areas of procurement and reliability.
    iii. Produce/ Raw material quality and assurance testing
5. Enterprise:
    i. Existing number of units, available capacity and utilisation in the project block, district and the State.
    ii. Products and services and projections.
    iii. Statutory requirements / licensing details if any.
6. Market :
    i. Quality grades/ specifications/ kinds of products
    ii. Demand and Supply data for the products and services.
    iii. Business model for the unit.
7. Source of Technology
8. Civil infrastructure, Plant and Machinery. Design, layout and Photographic evidence certified by chartered engineer is required to be submitted in case the project is considered for processing.

Facility / utility	Recommended	Proposed.	Remarks

9.Skilled Manpower availability:

Reference Data Sheet

#	Component: Reefer Container	Description
1	Container dimensions	20 standard: 8' x 8.5' x 20', 27 to 28 cum
2	Insulation details	Thermal Conductivity value / mm
3	Tare weight	kgs
4	Gross weight	kgs

#	Component: Reefer Container	Description
5	Temperature recording	type
6	GPS System	Must be fitted
7	Refrigeration capacity	kW
8	Refrigerant used	Technical name of refrigerant
9	Fresh air exchange	Describe system fitted
10	Diesel/electric auto-switching	Describe dual power unit
11	Air flow cum/hr (CFM)	Evaporator air flow in CFM
12	Temperature control precision +/- °C	Precision in controls in °C
13	Name of Manufacturer	
14	Year of manufacture	
15	Any design enhancement	Describe design changes is any

Codes and References		
1	ISO/ TC 104	Freight containers
2	ISO 668:2013	Classification, dimensions and ratings
3	ISO/NP 1161:1990	Corner fittings
4	ISO 1496/2 : 1996	Specification and testing
5	ISO Code 22R1, 45R1	Size of container
6	ISO 6346: 1995	Coding, Identification and Marking
7	ISO-14001:2004	Environmental Management
8	ISO 1496/2	Performance test of thermal appliances

All mandatory rules & regulations (BIS, ISO, IS etc.) relevant to the item must be complied with.

5.5.5.6 Retail outlet

1.Introduction:

RETAIL SHELF

Component Definition

The Retail Shelf equipment's are temperature and/or humidity controlled cabinets or shelves that help in merchandising of fresh horticulture produce by maintaining the on-shelf quality of fruits and vegetables.

Component Description

A maximum admissible cost norm of Rs 10 lac per establishment is applicable for a Retail shelf as part of add on components for credit linked subsidy. This does not limit the establishment from utilising more retail shelves as per requirement or from sourcing equipment with higher costs or options.

The Component name "Retail Shelf" can consist of individual items such as:

1. Multi-decks
2. Small Multi-decks
3. Roll In decks
4. Vertical Decks
5. Specialised cool shelving
6. Associated refrigeration and humidification equipment.

All applicable safety and performance norms shall apply to Retail Shelf component.

2. Rationale for the proposal
3. Product / Process flow chart.
4. Proposed project location:
5. Number of days proposed to be operational:
6. Produce / Raw Material:
    a. Types/ Quality of raw material- Grades/ Specifications
    b. Raw material availability and procurement: Details of own production if any and local production annually with 5 years data with future projections. Markets and farm areas of procurement and reliability.
    c. Produce/ Raw material quality and assurance testing
7. Enterprise:
    a. Existing number of units, available capacity and utilisation in the project block, district and the State.
    b. Products and services and projections.
    c. Statutory requirements / licensing details if any.
7. Market :
    h) Quality grades/ specifications/ kinds of products
    i) Demand and Supply data for the products and services.
    j) Existing / Proposed Market linkage
    k) MOUs/ Contract documents / undertakings/ LoA

l) Target consumption centres/ key domestic markets
m) Export targets/ Plans if any
n) In case of export, details of volume to be exported / export destination / statutory norms of export destination should be provided in the DPR.

8. Business model for the unit.
9. Source of Technology
10. Civil infrastructure, Plant and Machinery. Design, layout and Photographic evidence certified by chartered engineer is required to be submitted in case the project is considered for processing.

Facility / utility	Recommended	Proposed.	Remarks

11. List of Manufacturers / Suppliers of Plant and Machinery (enclose quotations during Market viability and Financial viability stage)

Plant & Machinery	Manu-facturer	Offer product Technical Specifications	Compliance with the NHB standards	Quotation cost excluding Taxes	Dealers location	Quotation is in possession of the applicant

12.Requirement and Availability of

i. Managerial manpower
j. Technical manpower
k. Skilled manpower
l. Un skilled manpower

13. Data sheet:

Representative Photographs from www

Reference Data Sheet

#	Component: Retail Shelf	Description
1	Name of Manufacturer	Provide the name of manufacturer and model.
2	Type	Specify the kind of Retail Shelf i.e. Multi-decks, Small Multi-decks, Roll In's.
3	Produce to be handled	Name types of produce to be handled
4	Capacity	Storable volume of fresh products the shelf can store in m^3.
5	Dimension external	Specify the floor area occupied by the retail and height in mtr
6	Electronics	Specify energy saving electronics and the automatic cut-off/start are provided.
7	Temperature Range	Specify the operating Temperature Range of the Retail Shelf as specified by the Manufacturer.
8	RH control	Provide details of RH controls
9	Lighting system	Provide details and kW of lights used
10	Total Refrigeration capacity	Provide the capacity of refrigeration unit of the shelf in kW.
11	Refrigerant used	Provide the technical name of refrigerant.
12	Energy consumption	Total power consumption of the shelf in kW.
13	Years in business	Provide details of retail shop, years in business, annual sales volume, etc.

5.6	**Marketing**

5.6.1.Connectivity of project site and produce

1. Road connectivity	Distance
a. National Highway	
b. State Highway	
c. Fright corridor	
d. Quadri lateral	
2. Rail connectivity	
3. Air connectivity	

5.6.2.Nearest produce Assembling / Aggregation unit/ place if any

5.6.3.Existing Market Institutions – Agri.Produce Market Committees, …….

a) Near to Project site
b) Within the District / Neighbourhood districts
c) Within the State
d) In Adjacent State

5.6.4.Alternative Marketing strategies;

a. Pre-harvest contract
b. On Farm Marketing
c. Retail Marketing
d. Wholesale marketing
e. Online Marketing
f. Exports

5.6.5.Traceability Record/ system proposed if any for packs.

5.6.6.Proposed value chain / method of Marketing by the Applicant

5.7	**Value Addition/ Processing**

Potential for the processing of crop produce / commodity and facilities / infrastructure available

	Processing product (s)	Infrastructure / Processing units available	Capacity	% capacity utilisation	Remarks

6	Technology providers

6.1. Research Institute (s) [ICAR/CAU/SAU/SHU etc.] providing / from which technical details are ascertained

ICAR-Central institute for Arid Horticulture, Bikaner (Raj.)

ICAR-CAZRI, Jodhpur

SKRAU, Bikaner

CHES(ICAR-CIAH), Godhra, Gujarat
CISH, Lucknow
ND University of Agriculture and Technology, Faizabad

6.2. Experts-whose services are availed -**Crop expert / Subject Matter Specialist (SMS) and other experts consulted DPR preparation.**

Crop Expert	Name of Horticulturist/ Crop Expert	
(Mandatory)	Current profession:	
	Educational Qualification and University passed out	
	Registration Number if any	
	Permanent Address:	
	Contact Number:	
Hi Tech Expert	Name of Expert	
(Desirable)	Current profession:	
	Educational Qualification and University passed out	
	Registration Number if any	
	Permanent Address:	
	Contact Number:	
Post-Harvest Management Expert	Name of PHM Expert	
(Desirable)	Current profession:	
	Educational Qualification and University passed out	
	Registration Number if any	
	Permanent Address:	
	Contact Number:	
Cold storage / Infra Expert / Charter Engineer	Name of Expert	
(Desirable)	Current profession:	
	Educational Qualification and University passed out	
	Registration Number if any	
	Permanent Address:	
	Contact Number:	
Market Expert	Name of Expert	
(Desirable)	Current profession:	
	Educational Qualification and University passed out	
	Registration Number if any	
	Permanent Address:	
	Contact Number:	
Project Finance	Name of Expert	
(Mandatory)	Current profession:	
	Educational Qualification and University passed out	
	Registration Number if any	
	Permanent Address:	
	Contact Number:	

6.3.Agri-Business Incubators

1. Contact person address for Advisory / Extension/ Incubator services available on the said crop specific ICAR institution: Provide the details.

ICAR Institute / NRC/ Directorate contact Person for Extension / Advisory/ Business Incubatory services (Mandatory)	Designation of Horticulturist/ Crop Expert	
	Name of the Contact person	
	Postal Address	
	Postal PIN code	
	Contact Tel:	
	Contact Mobile Number:	
	Email id	

2. List of Incubators / Extension / Advisory service nearest to the project.
3. If any assistance is taken from the incubators, details

1. List of Incubators nearest to the project.
2. If any assistance is taken from the incubators, details

7	Food Safety – With / Without Good Agricultural Practices Certification	
7.1.	GAP	Optional
	Whether the applicant proposes to undertake Good Agricultural Practices?	Yes/No
	If Yes. What brand / kind GAP – Provide details of brand	
	Provide Certifying Agency details and contact person	
	NABL lab whose services are proposed to be availed to assure compliance with regard to pesticide / chemical residue.	

7.2. FOOD SAFETY MEASURES

7.2.1.Pre-Planting Measures

Activity	Action taken /Proposed to be in the project
1. Site selection Land or site for fruits and vegetable production should be selected on the basis of land history, previous manure applications and crop rotation.	
a) The field should be away from animal housing, pastures or barnyards.	
b) Farmers should make sure that livestock waste should not enter the produce fields via runoff or drift.	
2. Manure handling and field application Livestock manure can be a valuable source of nutrients, but it also can be a source of human pathogens if not managed correctly.	
a) Proper and thorough composting of manure, incorporating it into soil prior to planting, and avoiding top-dressing of plants are important steps toward reducing the risk of microbial contamination.	
3. Manure storage and sourcing	
a) Manure should be stored as far away as practical from areas where fresh produce is grown and handled.	
b) Physical barriers or wind barriers should be erected to prevent runoff and wind drift of manure.	
c) Manure should be actively compost so that high temperature achieved by well-managed, aerobic compost can kill most harmful pathogens.	
4. Timely application of manure Manure should be applied at the end of the season to all planned vegetable ground or fruit acreage, preferably when soils are warm, non-saturated, and cover-cropped. If manure is being applied at the start of a season, then the manure should be spread two weeks before planting, preferably to grain or forage crops.	
5. Selection of appropriate crop Farmers should avoid growing root and leafy crops in the year that manure is applied to a Field. Manure should be applied to perennial crops in the planting year only. The long period between application and harvest will reduce the risks.	

7.2.2. Production Measures

Irrigation water quality Ideally, water used for irrigation or chemical spray should be free from pathogen. However, potable water or municipal water is not feasible for extensive use for crop production.	
a) Hence, surface water used for irrigation should be quarterly tested in laboratory for pathogen.	
b) Farmers can filter or use the settling ponds to improve water quality.	
c) Fruit and vegetable crops should not be side dressed with fresh or slurry manure. If side dressing is required, well composted or well-aged (greater than one year) manure should be used for the application.	
Irrigation methods	
a) Drip irrigation method should be used, whenever possible to reduce the risk of crop contamination because the edible parts of most crops are not wetted directly.	
b) Plant disease levels also may be reduced and water use efficiency is maximized with this method.	
Field sanitation	
a) Farmers should stay out of wet fields to reduce the spread of plant or human pathogens.	
b) Tractors, plant, machinery and equipments that were used in manure handling should be cleaned prior to entering produce fields.	
c) Animals, including poultry or pets should be allowed to roam in crop areas for pest control	
Worker facilities and hygiene	
a) Farmers should get proper training to make them understand the relationship between food safety and personal hygiene. These facilities should be monitored and enforced.	
b) Ideally, farm workers should be provided clean, well-maintained and hygienic toilet facilities around the farming areas separately for the male and female.	

7.2.3. Harvest

Clean harvest aids	
a) Bins and all crop containers have to washed and rinsed under high pressure. All crop containers should be sanitized before harvest.	
b) Bins should be properly covered, when not in used to avoid contamination by birds and animals.	
Worker hygiene and training	
a) Good personal hygiene is particularly	

important during the harvest of crops. Sick employees or those with contaminated hands can spread pathogens to produce.	
b) Employee awareness, meaningful training and accessible restroom facilities with hand wash stations encourage good hygiene.	

7.2.4. Post-Harvest Handling

Worker hygiene	
a) Hands can contaminate fresh fruits and vegetables with harmful microbes	
b) Packing area should be cleaned and sanitized.	
c) Supply liquid soap in dispensers, potable water, and single-use paper towels for hand washing.	
d) Packing area should be cleaned and sanitized. Supply liquid soap in dispensers, potable water, and single-use paper towels for hand washing.	
e) Workers should be properly educated about the importance of restroom use and proper hand washing.	
f) Encourage proper use of disposable gloves on packing lines.	
g) Sick employee should not be given food-contact jobs.	
Monitor wash water quality	
a) Potable water should be preferably used in all washing operations.	
b) Clean water should be maintained in dump tank by sanitizing and changing water regularly.	
c) Use chlorinated water and other labeled disinfectants to wash fresh produce.	
Sanitize packinghouse and packing operations	
a) Loading, staging, and all food contact surfaces should be cleaned and sanitized at the end of each day.	
b) Exclude all animals, especially rodents and birds from the packinghouse.	
c) Wash, rinse and sanitize the packing line belts, conveyors, and food contact surfaces at the end of each day to avoid buildup of harmful microorganisms.	
d) Packaging material should be stored in a clean area	
Pre-cooling and cold storage	
a) Proper cleanliness of the transportation vehicles should be ensured before loading.	
b) Farmers have to make sure that fresh fruits and	

vegetables are not shipped in trucks which have carried live animals or harmful substances.	
c) If these trucks must be used, they should be washed, rinsed, and sanitized them before transporting fresh produce.	
d) For traceability norms, it must be ensured that each package leaving the farm can be traced to field of origin and date of packing	

Source: http:// agritech.tnau.ac.in_gmp.glp/gap_fresh%20_%20fruits%20&%20veg.html.

8.Innovation if any

In Aonla crop following innovations to be required:

1. Development of frost resistant variety.
2. Development of coloured variety.
3. Improvement in self life.
4. Value addition: Innovation in this area is required to commercialize the crop on large scale.

9. Profitability of the project (Horti-business): Critical observations of Applicant

10	**Checklist**

Check list for Detail Project Report (DPR)

		Mandatory Information	Document / Evidence *	Tick Mark
	Project at a Glance	√		
1	**About the Applicant /Promoter**	√		
2	**Details of benefits availedby the Applicant / Promoter**	√		
3	**About Project -Name, rationale, Management and Description**			
	1. Name of Project, Activity, Objectives and expected Outcomes	√		
	2. Rationale / Justification for the project	√		
	3. Site/ Land details- RoR/ Ownership / Registration of lease/ map etc.	√	Certified Land revenue documents	
	4. Location of the Project- Identification	√		
	5. Current usage of land of proposed Project Area	√		
	6. Current infrastructure and assets possessed by the Applicant:	√		
	7. Lay out plan of the project	√	Lay out Plan	
	8. Conversion of Land Use (CLU)	√	Certificate from competent authority	
	9. Whether project site is part of production belt / cluster / hub	√		
	10. Rationale for the location of the project	√		
	11. Compliance of project site for food safety	√		
	12. Components / Activities of the Project with justification	√		
	13. Operations planning	√		
	14. Profile of the agencies executing post harvest infrastructures based on project/ applicability etc	√		
	15. Month wise operational chart / Implementation schedule	√		
	16. Backward and Forward linkages.	√		
	17. Manpower (Skilled & Unskilled labour etc.) availability	√		
	18. Infrastructure (Power, Fuel, Water, Plant and Machinery, connectivity, Effluents treatment etc.)- Required, Already available, Gaps and the management.	√		
	19. Employment generation	√		

	20. SWOT Analysis	√		
	21. Attention of the applicant	√	Certificate	
4	**NHB Scheme under which the project is proposed with rationale / justification.**			
5	**Project details**			
5.1	**Agro-climatic suitability / feasibility**			
	Origin and distribution of crop in the said location and India and in the world (briefly)			
	Agro-climatic/Horticultural zones and suitability of the crop (s)	√	IMD Data	
	Soil type and latest health-suitability for the crop	√	Latest Soil health card (not more than 1 month old)	
	Water (irrigation) source, availability, Quality and suitability	√	Latest water analysis report (not more than 1 month old)	
5.2	**Market viability**			
	Commercial and Nutritive importance / significance, composition and Uses			
	Target Market	√		
	Area, Production and Productivity in the District, State and India for the last 5 years			
	Clusters of the project crop in the state.	√		
	Demand and Supply Gap	√	State Horticulture Dept.	
	Global producers- Country, Area, Production, Productivity and global market share in the last available 5 years.			
	International trade and potential (for export oriented projects)	√ @		
	Seasonality of fruit and its comparison with other available fruits	√		
	Price variation of commodity in the State and nearby markets	√	State Govt.	
	. Balance sheet of commodity in the State			
	. Central and State Government policy			
	. Value chain in the commodity	√		
	. Proposed Strategy by the Applicant for Marketing and Market viability	√		
5.3	**Financial viability**			
	1. Due diligence status	√		
	2. Project Cost	√	Certified by CA	
	3. Means of Finance	√		
	4. A information on subsidy available under different schemes			
	5. Hypothecation security if any	√		

	6. About bank/FI	√		
	7. Investment in horticulture	√		
	8. Projected/ existing operational profitability of the project	√		
	9. Project financing	√		
	a. Rate of Interest	√		
	b. Returns from the Project (IRR):	√		
	c. Cost of Production and Profitability (Annexure)	√		
	d. Yield and Sales Chart (Annexure)	√		
	e. Proposed Balance Sheet: (Annexure)	√		
	f. Proposed Cash flow Statement for next 7 years (Annexure)	√		
	g. Proposed Profit & Loss Account: (Annexure)	√		
	h. Proposed Repayment of Term loan and Schedule (Annexure)	√		
	i. Break even Analysis (Annexure)	√		
	j. NPV (Net Present Value)	√		
	k. Economic Rate of Return	√		
	l. Depreciation	√		
	10. Sensitivity analysis of the project	√		
	11. Key financial parameters for the proposal	√		
	12. Statement of assets and liabilities	√		
	13. Risk analysis			
	14. Farm record keeping/ Maintenance proposed	√	Records	
5.4	**Land development and Crop Husbandry**			
	5.4.1.Land development			
	5.4.2.Selection of Quality Planting Material			
	1. Recommended and popular Cultivars-varieties/hybrids, their specific characteristics, requirements and yields	√		
	2. Cultivar/Hybrid/Variety selected and Criterion adopted for selection	√		
	3. Propagation methods	√		
	4. Accredited / Good Nurseries in the area	√		
	5. Planting material-source, quality and suitability	√	Nursery / shop invoice with seed quality	
	5.4.3.Orchard / Site planning, Lay out and management			
	1. Planning, establishment and layout systems	√		
	2. Land preparation	√		
	3. Planting Season / time and density and	√		

	transplanting			
	4. Water and Nutrient management	√	written plan	
	5. Intercultural operations including Weed management	√		
	6. Plant canopy architecture management/ training and pruning	√		
	7. Planting systems and transplanting of horticultural crops	√		
	8. Use of Pollinators & pollinisers	√		
	9. Use of Plant growth regulators	√		
	10. Flowering & fruiting	√		
	11. Integrated Pest and Disease Management and Food Safety measures	√		
	12. Physiological disorders- causes, preventive and management measures.	√		
	13. Special problems if any	√		
	5.4.5.Farm Structures and mechanisation	√		
	Protective cover structure	√	Technical standards	
		√	Undertaking of expertise / competency by Agency	
	Farm Mechanisation	√	Company Brochures	
	5.4.6.Harvesting and Fruit / flower care management			
5.5	**Post-Harvest Management**	√		
	1. Post-Harvest infrastructure scenario in horticulture sector in the State and specially for the proposed crop / component			
	2. Product/ Process Flow chart	√		
	3. Lay out / Floor Plan of post-harvest operations	√		
	4. Post-harvest operations (Based on applicability)	√	Protocols	
	5. Pre-cooling	√		
	6. Cleaning / Washing	√		
	7. Sorting and Grading	√		
	8. Packing and labelling	√		
	9. Transport	√	Models	
	10. Storage- Low cost / cold storage/ CA	√		
	11. Post-harvest infrastructure – Integrated Post-harvest Management- (Which ever component is proposed)	√	Technical Standards	
	1. Integrated Pack house			
	Pack House			
	Pre-cooling unit			
	Cold Room (Staging)			

	Primary Processing			
	Refer van			
	Retail outlet			
	Labour room			
5.6	**Marketing**			
	Aggregation & Assembling: Marketing infrastructure	√		
	Market Institutions and agents	√		
	Demand and Supply trends and forecast both in local and National markets.			
	Traceability system	√		
	Proposed value chain / method of Marketing by the Applicant	√		
5.7	**Value addition / Processing**	√		
6	**Technology providers**	√		
	ICAR /CAU/ SAU/SHU / Research Stations and Experts names	√		
	Agri/Horti-Business incubators	√		
7	**Food Safety -With /Without GAP certification**			
	GAP Certification if any	√		
	Food safety measures	√	Clean farm, Trained workers; Protective clothing, Safety equipment; First Aid; Safety and Hygiene policy; Waste Management Plan	
	Pre-planting	√		
	Crop husbandry	√		
	Harvestings	√		
	Post-harvest	√		
8	Innovation if any			
9	**Risk Management**	√	Proposed insurance details if any	
10	**Checklist**	√		
11	**Declaration from Crop Expert and Project Finance Expert**	√		
	Self-declaration by the Applicant	√		

Note: *: Documents are to be submitted only when NHB accords Pre- IPA approval.

@ In case of export units.

a. Declaration by Crop Expert (if the Project / Crop specific information, data and chapters of DPR are prepared by theexpert and not by the applicant)

I have read and understood the latest NHB Schemes operational guidelines and made the applicant understand the same.

The technical information provided in the Detail Project Report are as recommended by ICAR/ State Agriculture / Horticulture University/ …….Research Institute as published in their publication……./ genuine website…….

The project is technically feasible and economically viable and is bankable.

Certified that the information/contents as above furnished by me/us in the application are true to the best of my/our knowledge & belief and nothing material has been concealed.

My details are as follows:

Name of Crop Expert		(Could be any working or retired faculty / scientist in ICAR/ CAU/SAU/SHU/State Horticulture Dept. or ICAR Agri/ Horti-business incubators)
Current/ previous profession:		
Educational qualification and University passed out		
Registration number if any		
Permanent address:		
Contact Number:	Tel	
	Mobile	
	Email	

Place	Signature
Date	Designation and Seal

11.2. Declaration by Project Finance Expert (Chartered accountant)

(If the Market viability and Financial Viability chapters are prepared by the Project Finance Expert and not done by the applicant on his/her own)

I have read and understood the latest NHB Schemes operational guidelines and made the applicant understand the same.

The project is technically feasible and economically viable and is bankable.

The Financial and Market viability as provided in the Detail Project Report is true to the best of my knowledge.

Certified that the information/contents as above furnished by me/us in the application are true to the best of my/our knowledge & belief and nothing material has been concealed.

Name of Chartered Accountant	
Current profession:	
Educational qualification and University passed out	
Registration number if any	
Permanent address:	
Contact Number:	Tel
	Mobile
	Email

Place	Signature
Date	Designation and Seal

9. Self-Declaration by applicant

1. I have read and understood the latest NHB Schemes operational guidelines including conditions, norms and pattern of assistance.
2. The information provided in the Detail Project Report is true to my knowledge.
3. In case the details provided by me viz., (i) my personal details, land, previous benefits availed by me from either Central and State Government if proved false at any stage NHB is entitled to recoverany subsidy if any released by it from me.
4. I have personally ascertained technical details of the projector or I have availed the services of a competent Horticulturist for technical details and viability. Accordingly declaration is provided herewith.
5. I have personally ascertained Financial and Market viability of the project or I have availed the services of a competent Project Finance expert for the requisite project finance details and project viability. Accordingly declaration is provided herewith.
6. In case the project is approved for pre-IPA, I shall undergo a 2 Weeks (min.10 working days) training programme in case of Open field condition and protective cover (with or without PHM component) and a minimum of 1 Week programme in case of standalone PHM component at my own expenses in one of the ICAR/CAU/SAU/SHU/ Research Station/ Centres of Excellence/ related Central or State Government institution/ others as found appropriate / approved by NHB.
7. I shall adopt scientific package of practices / technology and maintain proper farm accounts.
8. The project is technically feasible and economically viable and is bankable.
9. In case the project application is considered for application processing, I am bound to submit all required / requisite mandatory documents to establish veracity of my DPR and eligibility to claim subsidy under NHB Schemes in the form prescribed within 3 months of any such intimation from NHB for according In principle approval (IPA). Else I acknowledge that my application stands vacated and rejected by default of my omission.
10. Incomplete/ NPA projects and default cases shall not be eligible for subsidy.
11. In case the project is approved for subsidy claim I shall undertake a MOU with NHB to comply with all the terms and conditions of the scheme guidelines as effective on the date of subsidy claim approval and any other condition/ advisory in the interest of projects success and sustainability.

Applicant (Name and signature) and Seal if any

Date

Location:

Should be taken at the time of preparation of DPR (before DPR submission). but should be enclosed during Market viability and Financial viability stage both in soft copy and hard copy.

CA Certificate Format
(Letter Head of the CA)
[Refer Para

CA certificate (With membership No. and firm registration No. of CA) in the following format:-

i. Project Cost:

Sl. No.	Name of the Component/Item	Amount (Rs. in lakh)
1.	Land/development charges	
2.	Civil works — Technical civil works — Other civil works	
3.	Plant & Machinery	
4.	Misc. Fixed Assets	
5.	Others	
	TOTAL	

ii. Means of Finance:

Sl. No.	Item	Amount (Rs. in lakh)
1	Promoter's Equity	
2	Term Loan	
3	Grant from MFPI	
4	Unsecured loan*	
5	Others	

*Details of unsecured loans along with PAN No. of lenders, if any, duly certified by CA.

Signature and Seal of C.A (Statutory Auditor in case of company)

Date: _____

Counter signature of promoter/ authorized signatory of company with Seal

CA Certificate Format
(Letter Head of the CA)

CA certificate (With membership No. and firm registration No. of CA) in the following format:-

iii. Project Cost: (Rs. in lakh)

Sl. No.	Name of the Component/Item	Cost approved by the Ministry	Actual expenditure incurred as on ------
1.	Land/development charges		
2.	Civil works — Technical civil works — Other civil works		
3.	Plant & Machinery		
4.	Misc. Fixed Assets		
5.	Others		
	TOTAL		

iv. Means of Finance: (Rs. in lakh)

Sl. No.	Item	Means of finance approved by the Ministry	Actual expenditure incurred as on ------
1	Promoter's Equity		
2	Term Loan		
3	Grant from MFPI		
4	Unsecured loan*		
5	Others		

*Details of unsecured loans along with PAN No. of lenders, if any, duly certified by CA.

Signature and Seal of C.A (Statutory Auditor in case of company)

Date: _____

(The certification by CA should be based on the verification of books of accounts, bills, invoices, work orders, bank statements, etc. related to the project.)

Counter signature of promoter/ authorized signatory of company with Seal

Should be taken at the time of preparation of DPR (before DPR submission). but should be enclosed during Market viability and Financial viability stage both in soft copy and hard copy.

CE Certificate (Civil) Format for Technical Civil Work:
(Letter Head of the CE)
[Refer Para

CE certificate (With membership/registration No. of CE) in the following format:

Name of Project:
Location with address:
Date of site Visit by Chartered Engineer:
Project Progress: (If project has multiple locations, the location wise details should be submitted in below format for each location)

Sl. No.	Name of Component	Proposed Area (sq.m)	Proposed Cost (Lakh Rs)	Rate/ Unit(Rs/Sqm)
	Total			

Signature and Seal of C.E.

Counter signature of promoter/ authorized signatory of company with Seal

Annexure-IV

CE Certificate (Civil) Format for Technical Civil Work:
(Letter Head of the CE)

CE certificate (With membership/registration No. of CE) in the following format:

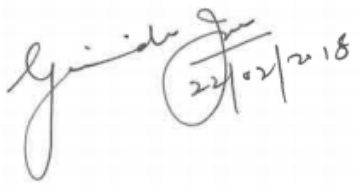
Name of Project:
Location with address:
Date of site Visit by Chartered Engineer:
Project Progress: (If project has multiple locations, the location wise details should be submitted in below format for each location)

Sl. No.	Name of Component	Proposed/ appraised Area (sqm)	Proposed/ appraised Cost (Lakh Rs)	Actual Area(sqm)	Actual Cost(Lakh Rs)	Rate/ Unit(Rs/Sqm)	Remarks about the status of implementation	Comments on quality, construction standards, market rates
	Total							

It is certified that the material/ components used in the Technical Civil Work are new.

Signature and Seal of C.E.

Counter signature of promoter/ authorized signatory of company with Seal



CE Certificate (Mechanical) Format for Plant & Machinery:
(Letter Head of the CE)
[Refer Para

CE Certificate (With membership/registration No. of CE) in the following format:-

Name of project:
Location with address:
Date of Visit by Chartered Engineer:
Project Progress (If project has multiple locations, the location wise details should be submitted in below format for each location)

Sl. No.	Name of Component	Proposed Quantity	Proposed Cost (Lakh Rs)		Supplier/ Manufacturer (Supported by quotations)
			Basic Cost	Taxes, Freight, installation, insurance	
	Component -1				
	Component -2				
	Component -3				
	TOTAL				

Signature and Seal of C.E.

Counter signature of promoter/ authorized signatory of company with Seal

Annexure-V

CE Certificate (Mechanical) Format for Plant & Machinery:
(Letter Head of the CE)

CE Certificate (With membership/registration No. of CE) in the following format:-

Name of project:
Location with address:
Date of Visit by Chartered Engineer:
Project Progress (If project has multiple locations, the location wise details should be submitted in below format for each location)

Sl. No.	Name of Component	Proposed/ appraised Quantity	Proposed/ appraised Cost (Lakh Rs)	Actual Quantity	Actual Cost (Lakh Rs)		Supplier/ Manufacturer	Status of implementation	Comments on quality, specifications, etc.
					Basic Cost	Taxes, Freight, installation, insurance			
	Component -1							Such as: •Ordered •Received at site •Installation in progress •Installed •Commissioned	
	Component -2								
	Component -3								
	TOTAL								

It is certified that all the plant and machinery for which grant has been approved are new.

Signature and Seal of C.E.

Counter signature of promoter/ authorized signatory of company with Seal

Appendix-VI

UNDERTAKING
[Refer Para 12.1 (m)]

I ..... (Name of the Lead Promoter/Director/ Partner/ Proprietor etc.) Son of Mr..... (Father's name) resident of ..... (Residential address) do hereby solemnly affirm and declare/undertake as under:

1. That I am promoter/ director/ partner/ proprietor of M/s..... (name of applicant) having its Registration no. .....and Registered Office at ..... (office address of applicant).

2. I hereby make application and I am duly authorized in my own right/by management vide its resolution no. .....dated.....to apply and sign all required documents including this undertaking on behalf of company/partnership firm/cooperative society etc. named as .....; and am fully aware of the facts relating to the setting up of project at Survey/ Plot No....., Village.....,Tehsil.....,District.....,State....., PIN code .....(location of the main facility) for.....(activities to be undertaken by project) and application is being made to the Ministry of Food Processing Industries (MoFPI) under the Central Sector Scheme for Creation of Backward and Forward Linkages.

3. That the term and conditions of the above scheme of the MoFPI under which an application is made by the applicant have been properly read and understood by me and I affirm that the project/ proposal comply with all the terms and conditions of the approval letter and provisions enshrined in the scheme guidelines.

4. That the proposed activities to be undertaken by the project/proposal are covered under the above scheme of MoFPI and no part of the scheme/infrastructure of the project is designed or assigned to be used for any activity other than the activities specified in the application at present or in the near future.

5. It is certified that ..... (name of applicant) has not obtained or applied for grants for the same project, component, purpose or activity from any other Ministry or Department of the Government of India or State Government or their agencies.

6. It is certified that applicant's sister concern (s)/ related company / group company/firms as well as the applicant itself has not availed any financial assistance for a food processing project in the past from MFPI [if availed, the details shall be furnished separately].

7. I also solemnly affirm/undertake that the proposed project components in the application are a completely new activity and not a pre-existing activity or any component thereof.

8. In case of concealment of any facts in this regard, the MoFPI would have right to reject/ cancel my application/project out right at any stage.

Appendix-VI

UNDERTAKING
[Refer Para 12.1 (m)]

I ..... (Name of the Lead Promoter/Director/ Partner/ Proprietor etc.) Son of Mr..... (Father's name) resident of ..... (Residential address) do hereby solemnly affirm and declare/undertake as under:

1. That I am promoter/ director/ partner/ proprietor of M/s..... (name of applicant) having its Registration no. .....and Registered Office at ..... (office address of applicant).

2. I hereby make application and I am duly authorized in my own right/by management vide its resolution no. .....dated.....to apply and sign all required documents including this undertaking on behalf of company/partnership firm/cooperative society etc. named as .....; and am fully aware of the facts relating to the setting up of project at Survey/ Plot No....., Village.....,Tehsil.....,District.....,State....., PIN code .....(location of the main facility) for.....(activities to be undertaken by project) and application is being made to the Ministry of Food Processing Industries (MoFPI) under the Central Sector Scheme for Creation of Backward and Forward Linkages.

3. That the term and conditions of the above scheme of the MoFPI under which an application is made by the applicant have been properly read and understood by me and I affirm that the project/ proposal comply with all the terms and conditions of the approval letter and provisions enshrined in the scheme guidelines.

4. That the proposed activities to be undertaken by the project/proposal are covered under the above scheme of MoFPI and no part of the scheme/infrastructure of the project is designed or assigned to be used for any activity other than the activities specified in the application at present or in the near future.

5. It is certified that ..... (name of applicant) has not obtained or applied for grants for the same project, component, purpose or activity from any other Ministry or Department of the Government of India or State Government or their agencies.

6. It is certified that applicant's sister concern (s)/ related company / group company/firms as well as the applicant itself has not availed any financial assistance for a food processing project in the past from MFPI [if availed, the details shall be furnished separately].

7. I also solemnly affirm/undertake that the proposed project components in the application are a completely new activity and not a pre-existing activity or any component thereof.

8. In case of concealment of any facts in this regard, the MoFPI would have right to reject/ cancel my application/project out right at any stage.

9. I will meet any shortfall in means of finance due to less admissibility of grant or any future reduction in grant-in-aid or any escalation caused in the cost of the project.

10. I shall not dispose-off or encumber or utilize the assets created wholly or substantially out of government grant for purpose other than those for which they have been sanctioned, without obtaining the prior approval of the sanctioning authority of grant-in- aid.

11. In case of non-implementation/ delayed implementation of the project the Ministry will have absolute right in cancelling the approval granted and also recall the grant released, if any, along with interest as per the scheme guidelines.

12. In case of failure to operate the project for at least three years after commencement of commercial operation, I shall return the entire grant-in-aid with interest @ 10% per annum.

13. User charges/hiring rates of the facilities created under the project will be disseminated to the public including uploading of the same on the website of the project/ organization. A copy of the same will also be made available to the Ministry.

14. I undertake that all the information furnished in the application and the DPR with respect to the eligibility conditions, etc. are true and correct to the best of my knowledge and belief and nothing material has been concealed therefrom.

15. I also undertake that in the event of any information or facts furnished by me are found to be incorrect or material information concealed, during the course of implementation of the project or subsequent to implementation, the Ministry of Food Processing Industries may take action as per the provisions of scheme guidelines and/or as per the law of the land, as deemed fit and appropriate in the circumstances.

Date: _____ Signature of the Lead Promoter

Place: _____