F.No.P-12027/8/2019-PC Division
Government of India
Ministry of Food Processing Industries
Panchsheel Bhawan, August Kranti Marg,
New Delhi – 110049

Date: 16.05.2021

OFFICE MEMORANDUM

Subject: Notice seeking comments of public on the draft report on fixing Cost Norms of Plant & Machinery and equipment required for Fruit and Vegetable processing/sector – Reg.

With the approval of the competent authority, the committee constituted under the Chairpersonship of Dr. C. Vasudevappa, Vice Chancellor, National Institute of Food Technology Entrepreneurship and Management (NIFTEM) has submitted a draft report on fixing Cost Norms of Plant & Machinery and equipment required for Fruit and Vegetable processing.

2. The draft cost norms is attached herewith as **Annexure** seeking comments of public within 15 days from today i.e. latest by 31.05.2021 (5:00 PM). The comments, if any, may be sent directly to VC, NIFTEM at his email id vc@niftem.ac.in with a copy to the undersigned at atul.saxena69@gov.in.

Encl: As above

(Atul Saxena)
Joint Secretary
atul.saxena69@gov.in

ANNEXURE

Cost norms of Plant & Machinery and Equipment for Fruit and Vegetable sector

Ministry has constituted a Committee under the Chairmanship of VC, NIFTEM for fixing cost norms for infrastructure and processing facilities for working out eligible project cost for all the schemes under Pradhan Mantri Kisan Sampada Yojana (PMKSY).

2. Based on the examination of cost of Plant & Machinery and Equipment received from Original Equipment Manufacturers (OEMs), inputs available with the Members of the Committee, feedback and consultations, the Committee has proposed the cost norms for Plant & Machinery and Equipment required for food processing indicating the broad/ general specifications of the machine and its capacity.

3. The Ministry, based on the recommendations of the Committee and review thereupon, has determined the cost norms for the Plant & Machinery and Equipment for working out the Eligible Project Cost for the purpose of calculating the amount of grant as financial assistance to the projects under various schemes of the Ministry.

4. The cost norms for Plant & Machinery and Equipment have been fixed generally on the basis of OEM quotations of indigenous manufacturers for calculation of eligible projects cost/ grant under the schemes of the Ministry. This will help promote indigenous machinery. Entrepreneurs desiring to import such machinery may bear extra cost on their own. Wherever indigenous brand manufacturers do not exist, the cost norm will be fixed on the basis of cost of the lowest OEM quotation of imported machinery.

5. Cost norms have been determined for commonly used Plant & Machinery and Equipment required by the food processing industries. The list is not exhaustive and more Plant & Machinery and Equipment would be included in due course.

6. The costs mentioned are basic cost of Plant and Machinery, exclusive of tax, freight, installation and commissioning charges (except in few cases where the same is specifically indicated).

7. The cost of any other facilities / components proposed to be created under the project and not covered under the cost norms may be considered by Technical Committee based on the quotations

submitted along with the proposal and inputs of technical member of the Committee subject to the approval by the Inter-Ministerial Approval Committee.

8. If the capacity of components differs from those provided in cost norms, prorate cost may be considered by Technical Committee based on quotations submitted along with the proposal and inputs of technical member of the Committee subject to the approval by the Inter-Ministerial Approval Committee.

9. Plant and machineries, their material of constructions and supporting accessories should be of good quality and make, it should comply with the standards for quality and safety available for the same in the country, wherever applicable.

10. All processing equipment should be made of stainless steel of AISI 304/ 316 grade. All the major equipment of the plant should be designed, engineered and fabricated in accordance with the prevailing and applicable Indian Standards as laid down by BIS. Wherever Indian Standards are not available, international standards like EHEDG/3A standards may be considered.

12. The cost norms determined for Plant & Machinery and Equipment for Fruit and Vegetable sector are given in the table below:

A. Cost norms of plant & machinery and equipment for Fruits & Vegetables Processing Sector

Sr. No.	Description				Cost (in Rs. Lac.)
A.1	**IQF Tunnel [without refrigeration]**		**Associated Frozen Storage capacity**	**Refrigeration cost of IQF & Associated Frozen Storage**	**Total**
1.1	1 MT/hr.	85.00	1000 MT	140.00	225.00
1.2	2 MT/hr.	130.00	2000 MT	230.00	360.00
1.3	3 MT/hr.	220.00	3000 MT	290.00	510.00
1.4	4 MT/hr.	250.00	3000 MT	350.00	600.00
1.5	5 MT/hr.	280.00	3000 MT	400.00	680.00
A.2	**IQF**	**Tunnel only(Cost in Rs Lac)**		**Refrigeration (Cost in Rs Lac)**	**Total (in Rs. Lac.)**
2.1	1 MT/hr.	85.00		95.00	180.00
2.2	2 MT/hr.	130.00		150.00	280.00
2.3	3 MT/hr.	220.00		170.00	390.00
2.4	4 MT/hr.	250.00		200.00	450.00
2.5	5 MT/hr.	280.00		220.00	500.00
2.6	6 MT/hr.	318.00		250.00	568.00
A.3	**Blast Freezer(Including refrigeration and PEB structure)**				**Cost (in Rs. Lac.)**
3.1	1 MT/Batch				35.00
3.2	2 MT/Batch				50.00
3.3	3 MT/Batch				70.00
A.4	**Spiral Freezer (without refrigeration) Cost (In Rs. Lac.)**			**Refrigeration Cost (In Rs. Lac.)**	**Total Cost (in Rs. Lac.)**
4.1	250 Kg/hr.	130.00		150.00	280.00
4.2	500 Kg/hr.	170.00		180.00	350.00
4.3	1000 Kg/hr.	200.00		200.00	400.00

A.5	Pre-Processing/Preparatory Line associated with IQF for Peas (Including Depodder, Blancher & Pre-chiller)	Cost (in Rs. Lac.)
5.1	1 MT/hr.	80.00
5.2	2 MT/hr.	130.00
5.3	3 MT/hr.	180.00
5.4	4 MT/hr.	200.00
5.5	5 MT/hr.	250.00
5.6	6 MT/hr.	300.00

A.6	Pre-Processing/Preparatory Line associated with IQF for other Vegetables (other than Peas)	Cost (in Rs. Lac.)
6.1	Add on to Sl. No. A.5	70.00

A.7	Sorting Grading including washing line for fruits & vegetables including Tomato, Onion and Potato		
	Capacity	Cost (in Rs. Lac.) for Manual Line	Cost (in Rs. Lac.) for Semi Automatic Line
7.1	1 MT/hr.	10.0	15.00
7.2	2 MT/hr.	12.0	25.00
7.3	3 MT/hr.	15.0	30.00
7.4	4 MT/hr.	18.0	40.00
7.5	5 MT/hr.	20.0	50.00

A.8	Sorting, Grading & Packing Line for Apple (with optical grader)	Cost (in Rs. Lac.)
8.1	5 MT/hr.	200.00
8.2	10 MT/hr.	280.00
8.3	15 MT/hr.	325.00

A.9	Weighing & Packing line(Fully Automatic for end products) 1MT/hr.	65.00

A.10	Weighing & Packing line (semiautomatic)	
	Capacity MT/hr	Cost (in Rs Lac)
10.1	1 MT/hr	8.00
10.2	2 MT/hr	10.00
10.3	4 MT/hr	12.00
10.4	6 MT/hr	14.00
A.11	Metal Detector	10.00

Notes:

1. The cost norm given above are adopted from the 'Cost Norms for the facilities under Central Sector Scheme of Integrated Cold Chain and Value Addition Infrastructure' notified by MoFPI vide F. No. 5-12/2016-Infra (ICC) Dated 15.02.2017
2. The costs mentioned are basic cost of Plant and Machinery, exclusive of tax, freight, installation and commissioning charges.
3. Programmable Logic Controller (PLC) and Supervisory Control and Data Acquisition (SCADA) shall be mandatory for all cold chain Projects.
4. The cost of technical civil work (PEB structure other than frozen storage) will be Rs 10,000/- per square meter.
5. For the stand-alone frozen storage, all-inclusive cost would be Rs 15,000/- per MT including cost of technical civil work, plant &machinery and refrigeration.
6. The thickness of PUF panels for insulation in frozen storage should be minimum 100mm for floor, 120 mm for partition walls and 150 mm of outer walls.
7. 3.4 cubic mtr. will create a capacity of 1 MT for frozen storage
8. For capacities of two tonne and higher, either screw compressor technology or a combination of reciprocating and screw compressor technology is advisable.

B. Cost norms for NHB related activities (adopted from NCCD)

Sr. No.	Category	Component	Capacity	Cost (Rs.)
B.1	Development of Integrated Post Harvest Management	Pack House	9M*6M	4.0 lac./unit
		Integrated pack house (with facilities for conveyer belt, sorting, grading units, washing, drying and weighing)	9M*18M	50.0 lac./unit
		Pre-cooling unit	6 MT	25.0 lac./unit
		Cold room (staging)	30MT	15.0 lac./unit
		Mobile pre- cooling unit		25.0 lac./unit
		Ripening Chamber (11 $M^3$of chamber vol. shall be equivalent of 1 MT of storage capacity)	lac/MT	1.0 lac./MT
B.2	Expansion/ Modernization of Cold Storage	Cold storage units (Type 1 : Basic, large chambers (of >250 MT each) for single product storage / Temperature zone) Cost in Rs per MT	upto 5000 MT	8000
			5001 to 6500 MT	7600
			6501 to 8000 MT	7200
			8001 to 10000 MT	6800
		Cold storage units (Type 2 : multi-product use, > 6 chambers (of <250 MT each) for various product types / Temperature zones with basic material handling equipment) Cost in Rs per MT	upto 5000 MT	10000
			5001 to 6500 MT	9500
			6501 to 8000 MT	9000
			8001 to 10000 MT	8500
		Cold storage units (Type- 2		Additional Rs. 10,000/

		(with add on Tech. for Controlled Atmosphere)		MT for add on components of controlled atmosphere technology
		Technology induction and modernization of cold-chain		Max Rs 500.00 Lac @ Rs. 5000/MT for max. capacity of 10000 MT.
		Refrigerated Transport Vehicles (104 Feet^3 of chamber volume shall be equivalent of 1MT of storage capacity)		Rs. 30.00 lac for 15 MT, and prorate basis for capacities between 9 to 15 MT(3m^3)

C. Cost norms for Refrigeration Van

Sr No	Particulars	Cost (In Rs. Lac.)	Remarks
A.	Refrigerated containers Material FRP Container Length 10 feet Capacity 40-50 ton Temperature Range -25 to +4◦C	8.00	Excluding the vehicle cost
B.	Reefer Van Fuel Type Diesel Gross Vehicle Weight 3600 (KG) Type AC Payload Capacity 1600 (KG) No. of wheels 4 Temperature -15 to - 5◦C Insulation PUF	3.60	Excluding the vehicle cost
C.	Refrigerated containers Material Mild Steel Container Length 8 - 10 Feet Container Type Reefer Container Capacity 10-20 ton Surface Finishing Pain Coated Temperature Range -25 to +4◦C	8.00	Excluding the vehicle cost

D. Fruit & Vegetable Pack House

Sr.No.	Particulars	Capacity	Cost (Rs. in Lac.)
1	Fruit and vegetable Pack House(Multi fruits and vegetables) Handling line (Conveyor, storage tanks, washer, dryer, sorter and grader, weighing balance) wax coating, ripening chamber, vapour treatment facility, pre-cooling, cold storage	1.0 TPD	55-60
		2.0 TPD	85-90
		3.0 TPD	120-130

E. Tomato Processing

S.No	Particular	Capacity TPH	Cost in Rs Lacs	Remark
E.1	**Tomato Concentrate / Puree Line**	4	200	It includes pre-processing, juice extraction, heating, refining, pasteurization, hot break processing and evaporation etc.
		6	500	It includes all the above and turbo refiner, hopper etc.
E.2	**Add on cost for Aseptic filling line**	Single Head	125	
		Double Head	165	
E.3	**Tomato Sauce/Ketchup line**	0.5	50	
		1	80	
		2	100	It includes vacuum pan, homogenizer, automatic filler, cooling tunnel, levelling machine etc
		3	200	It includes all the above and deareator, pasteurizer/ evaporator etc.

Details of various sections of above Tomato Processing Lines

S.No	PARTICULARS
A	**Tomato Concentrate/Puree Line**
1.	Reception Section- Infeed conveyor, Tomato Washer, Sorting Table
2.	PROCESSING AND JUICE EXTRACTION SECTION- Tomato Juice Extractor, Receiving Tank, Transfer Pump, Pulp Preheater (Shell Tube Heat Exchanger), Pulper cum Finisher, Receiving Tank, Transfer Pump, Pulp Storage cum Balance Tank
3.	Evaporator
4.	Packaging -Aseptic Filling/Non aseptic Filling and labelling ,Batch Coding
B	**Tomato Concentrate/Puree processing Line from Pulp/Concentrate**
1	Pre Mixing Tank
2	Processing Kettle
3	Homogeniser
4	PHE for Cooling
5	Metal Detector& Rotary Magnet
6	Packaging -Aseptic Filling/Non aseptic Filling and labelling ,Batch Coding
7	Cooling Tunnel
C	**Tomato Sauce/Ketchup line**

1	Handling (washer, grader ,sorting table, crusher, cold and hot break system, inspection conveyor), pulper, juice extractor, evaporator, steam jacketed kettles, bottling line, concentrator, Tomato paste aseptic
2	Material handling equipment (trolleys, elevators, Hand Pallets truck, Forklift)

E.4 Tomato Sauce Line

S. No.	Particulars	Capacity	Cost (Rs. In Lac)
1	Tomato Washer	0.5T/Batch	2.5
2	Inspection Conveyor		0.9
3	Crusher		0.55
4	Pulper		0.85
5	Collection tank with filtermesh		0.25
6	Lube Pumps(3 Nos)		1.8
7	Heating Kettle		0.50
8	Processing kettle(2 Nos)		4.5
9	Piston Filler		1.8
10	Crown Capping Machine		0.7
11	Plastic Capping Machine		0.45
12	SS Tables (2 Nos)		0.45
13	S.S.Tank for Cooling		0.50
	Total		**15.75**

E.5 Tomato Canning Line

Sr. No.	**Particulars**	**Capacity**	**Cost (Rs. In Lac)**
1	Tomato Processing Plant – Input – 50 TPD With utilities Section	15 TPD	473.00
2	Tomato Processing Plant – Input – 75 TPD With utilities Section	22 TPD	615.00
3	Tomato Processing Plant – Input – 100 TPD With utilities Section	30 TPD	799.00

E6 Canning Line for Tomato and Mango processing

S. No.	Particulars	Capacity	Cost (in Rs. Lac.)
A	1.Mango processing machinery- Infeed Belt Conveyer,Fruit Washer With Elevator,2 Tier - 3 Way Belt Inspection Conveyor,Screw Elevator,Mango Destoner,Heavy Duty Structure With Platform For De Stoner,Rectangular Pulp Collection Tank,Transfer Pump,Double Stage Pulper,Heavy Duty Structure With Platform For Two Stage Pulper,Rectangular Pulp Collection Tank,Blending Tank,Rotary Scrape Surface Pulp Pasteurizer,Insulated Storage Tank,Waste 'U' Screw Conveyer. 2. Syrup preparation machinery- (Steam jacketed kettle, syrup filters press & Storage tanks) 3. Extra machinery for tomato processing - fruit mill, recirculation tank, pumps ,Shell and tube preheater, Pulper/ juicer, Steam jacketed kettle, storage tank 4. Canning section- Empty Can Sterilizer, Can Exhauster, 24 Ds Seamer, Vertical Retort, Crates For Retort, Electrical Hoist, Packing Table	0.5 TPH(Input)	85.00
		01 TPH(Input)	156.00
		02TPH(Input)	229.00
		05TPH(Input)	794.30

F. Onion Processing

S.No	Particular	Capacity TPH	Cost in Rs Lacs	Remark
1	Onion dehydration (Flakes)	1.0-1.5	100	
		3.0-3.5	200	
		5.00	300	Details of various sections for 5 TPD and above are given in the Table below.
		10.00	450	Further capacity can be calculated based on pro-rata basis
2	Onion dehydration (Powder)	0.50	50	
		1.00	80	
		2.00	155	
		5.00	365	

Details of various sections of onion dehydration plant

S.No	PARTICULARS
A	**RAW MATERIAL PRE-TREATMENT SECTION**
	Round grader and cleaner machine

	Vegetable washer machine
	Supply elevator
	Vegetable- dish piller machine
	Washing tank
B	**RAW MATERIAL SLICING SECTION**
	Supply elevator
	Buffer stock continuous header Conveyor
	Slicer machine
C	**RAW MATERIAL DRYING SECTION**
	Supply conveyor to dryer
	Vegetable dryer
	Been box dryer
D	**RAW MATERIAL POST TREATMENT SECTION**
	Dry material grader
	Shorting conveyor
	Metal detector
	Packing machine (5-10kg sealing machine)
E	**ELECTRICALS**

G. Potato Processing

G.1 Grading & Sorting line

S.No	Particular	Capacity TPH	Cost in Rs Lacs
1.	Grading & Sorting line (Flap Elevator, Soil remover, Inspection conveyor, Screen sizer, Collection belt)	1.0	14.00

G.2 Blancher & Plate Freezer.

S.No	Particular	Capacity TPH	Cost in Rs Lacs
1.	SS belt type blancher	1.0	
2.	Plate freezer 1000 kg/hr in 90 min	1.0	35.50

G.3 Individual Quick Freezer French Fries line with IQF

S.No	Particular	Capacity TPH	Cost in Rs Lacs
1	**French fries processing line** Feeding elevators, Potato grader,Destoner, Pealer, Brush type pealer, Sorting conveyor, Potato feeding elevator, Dicer maker, Bubble washer, Silver remover, Nubbin remover, Feeding elevators, Belt blancer double stage, Chemical tank with elevator, French fries dewatering shaker, Air dry tunnel,	0.5	250.00
		1.0	310.00

	High speed conveyor,Frier without boiler, Deoiling shaker, Inspection conveyor, Infeed vibrator to IQF, Pre cooling chamber Monitering System)		
2	**Individual Quick Freezer** (Doors, Walking platform, Vibatory feeding system, Snow collection cover, Air defrosting snow remover, Conveyor bed, Stirrer, PLC control & HMI screen touch pannel, Monitering System)	0.5	65
		1.0	90

G.4 Potato Processing (Imported)

S.No	Particular	Capacity TPH	Cost in Rs Lacs	Remark
1	Chips	0.5	750	Fully automatic lines
		1.0	1300	
2	Flakes	0.6	1200	Fully automatic lines
		1.2	1800	
3	French Fries	2	1500	Fully automatic lines Add on cost will be extra for IQF, Deep freezer etc
		3	2000	
		4	2500	
		6	3000	
4	Potato Specialty Processing Line *Specialty products such as Aloo Tikki, Burger Patty, Hash Brown, Veggie Stix, Potato Wages*	2.0	1500	
5	Add on cost for forming and frying unit	1 each	500	
6	Potato Starch	1.0	100	
		2.0	150	

Details of various sections of Potato Processing Lines

S.No	PARTICULARS
A	**Potato Chips Line**
	Potato receiving section
	Destoning and Washing
	Peeling
	Slicing
	Slice washing, Blenching and Dewatering
	Frying Section
	Seasoning section equipments
	Packing machine
B	**Potato Flakes Line**
	De stoner
	Steam Peeler
	Discharge Screw Conveyor

	Brush Deskinner
	Washing Machine
	Slicer
	Blancher
	Ricer
	Drying
	Milling
	Packaging
C	**French Fries Line**
	Potato Buffer Hopper
	Destoner
	Steam Peeler
	Screw Auger
	Brush Deskinner
	Inspection Table
	Slicer
	Sliver Remover
	Nubbin Remover
	Blancher
	Belt Dryer
	Continuous Frying System
	Belt Cooler
	Vertical Packaging Machine

H. 1 Freeze drying plant for fruits and vegetables

S. No.	Particulars	Capacity	Cost (Rs. in Lac)
1.	Preparatory line (Washer, inspection conveyor, sorting and grading, preparation table)	1TPH (raw material)	525
2.	Processing line (Peeler, slicer, dicer, blanching unit)		
3.	Freeze dryer		
4.	Packaging machines, dehumidifier		
5.	Material handling equipment (trolleys, elevators, Hand Pallets truck, Forklift)		

H. 2 Freeze Dryer

S.No	Capacity (Kg/Batch of 8 hr)	Cost of Plant (Rs. In Lac)	Utilities Required	Cost of Utilities (Rs. In Lac)	Cost of Installation & Commissioning (Rs. In Lac)	Total Cost (Rs. In Lac)
1	10	19.5	Deep Freezer,Air Compressor, Steam generator,	2.50	0.50	22.50

			Cooling tower			
2	20	23.5	Deep Freezer,Air Compressor, boiler,, Cooling tower	4.50	0.50	28.50
3	50	43.5	Deep Freezer, Air Compressor, boiler,, Cooling tower	7.50	0.50	51.50
4	100	68.5	Deep Freezer ,Air Compressor, boiler,, Cooling tower	11.50	1.00	81.00
5	330	190	Deep Freezer ,Air Compressor, boiler,, Cooling tower	60.00	5.00	255.00

I. Mushroom Processing

I.1 Mushroom Spawn Units

S. No.	Particulars	Capacity	Cost (Rs. In Lac)
1.	SS Kettle Cap - 250 Ltr	0.25T /Batch	17.70
2.	SS Perforated Tray 5' X 3'		
3.	SS Stand for Perforated Tray		
4.	SS Table with size 7' X 3.5'		
5.	M.S Retord (Double door) for 250 Kg		
6.	SS Tray for Retord 700mm X 900 mm		
7.	Laminar Flow 4' X 2' X 2'		
8.	B.O.D Incubator 6 Cubic feet		
9.	Puff Panel Cold Room		
10.	Trolly		
11.	G.I.Rack		

I.2 Mushroom Processing /Canning Line

S. No.	Particulars	Capacity	Cost (Rs. In Lac)
1.	Mushroom washer	0.5TPH	

2.	Mushroom blancher		37.00
3.	Mushroom cooler		
4.	Mushroom grader		
5.	Trolleys for grader		
6.	Mushroom inspection belt		
7.	Mushroom parallel slicer		
8.	Can sterlizer		
9.	Brine filler		
10.	Exhauster		
11.	Ss slat chain conveyor		
12.	Can seamer		
13.	Retort		
14.	SS trolley		
15.	Ink jet coder		

J. Pickle Line (Multi vegetable)

S. No.	Particulars	Capacity	Cost (Rs. In Lac)
1	Washing tank, Vegetable preparation tables, Lime quartering machine, mango slicing machine	5.0TPD	25
2	Pickle blending machine, pickle filling machine, mixing tanks		
3	Lug capping machine		
4	Material handling equipment (trolleys, elevators, Hand Pallets truck, Forklift)		

K.1 Candy & Murabba Processing Line

S. No.	Particulars	Capacity	Cost (Rs. In Lac)
1.	SS Kettle for product boiling	0.5TPD	29.00
2.	Amla breaking machine		
3.	Amla Pricking Machine		
4.	Sugar Syrup Making Kettle with Shear Pump		

5.	Inline Filter		
6.	Sugar Syrup Transfer Pump		
7.	Candy Soaking Tanks		
8.	Puff Panel Hot Room for candy Drying		
9.	Murabba Processing Tank (Double Jacketed)		
10.	SS Tank with Filtermesh & 1 HP SS Pump		
11.	Puff Panel Cold Room 25'X25'		

K.2 Candied fruit and vegetable Production line

S. No.	Particulars	Capacity	Cost (Rs. In Lac)
1	Preparatory line (Washer, inspection conveyor, sorting and grading, preparation table)	1 TPD	43
2	Processing line (Peeler, slicer, dicer, blancher)		
3	steam jacketed kettle, tank for candy preparation, duplex filter, dripping table, dryer		
4	Material handling equipment (trolleys, elevators, Hand Pallets truck, Forklift)		

L. Juice Processing Plant

S. No.	Particulars	Capacity	Cost (Rs. In Lac)
	SS Tank for manual washing	500 LPH	26.00
	Crusher		
	Pulper		
	SS Patila		
	Hydraulic Press		
	Juice collection Tank with Filter Mesh		
	Inline Filter		
	Juice Balance Tank with agitator.		
	Juice Transfer Pump		
	Juice Pasteurizer		
	Homogenizer		

	Insulated Buffer Tank		
	Piston Filter		
	Capper		
	SS Tank for Cooling		
	Shrink Tunnel		
	Injet Printer		
	SS Working Table		
	Puff Panel Cold Room 25'X25'		

M. Juice Concentrate Plant

S. No.	**Particulars**	**Capacity**	**Cost (Rs. In Lac)**
A	**Juice Extraction Section**	250 LPH	5.1
1	SS Washer		
2	SS Table		
3	Juice Extraction Machine		
4	SS Crusher- 3 HP		
5	Hydraulic Press		
B	**Juice Concentrate Section**		23.5
1,	Raw Juice balance		
2.	Juice Transfer Pump		
3.	Filter Press		
4.	Tank for Raw Juice		
5.	Pasteuriser (Plate Pack)		
6.	Aroma Recovery System		
7.	Aroma Storage Tank Double		
8.	Vertical Storage Tank Cap		
9.	Evaporator		
10.	PHE		
11.	Concentrate loading system with Aroma mixing		
	Grand Total		**28.60**

N. Juice Concentration line (Apple)

S. No.	**Particulars**	**Capacity**	**Cost (Rs. In Lac)**
1	Preparatory line (grader & sorter, inspection conveyor, washer)	2TPH	513
2	Juice extractor, Filtration unit, centrifugation, pasteurizer, evaporator, Aseptic sterilizer		
3	Material handling equipment (trolleys, elevators, Hand Pallets truck, Forklift)		

O. Fruit Jam/Jelly

S. No.	Particulars	Capacity	Cost (Rs. in Lac)
1	Fruit Jam/Jelly(Bottling line): Fruit sorting & Grading, Washer, Inspection conveyor, fruit mill, pulper, Sugar Syrup preparation syrup filters, Homogenization & pasteurization, Bottling Section, bottle inspection conveyor	1 TPH	53
		2.0 TPH	77
		3.0 TPH	105

P. PET Bottle packaging Line (200,300,600 & 1200 ML), 5000 LPH complete plant with Pre-processing section

Sr.no.	Particulars	Capacity	Cost (in Rs. Lac.)
A	**Sugar transfer section**	5000 LPH	975 .00
1.	Hopper (double) with stand and platform		
2.	Sugar syrup transfer pump		
3.	Mixing device assembly		
4.	Interconnecting pipes & fittings		
B	**Sugar syrup preparation section**		
1.	Sugar syrup preparation tank (double shelled insulated with agitator)		
2.	Radial jet mixing system with pump		
3.	Tubular heater for preparation of syrup		
4.	Steam control set up		
5.	Water flow meter		
6.	Tubular strainer/ filter		
7.	Sugar syrup transfer pump		
8.	Filter press		
9.	Hyflow coating tank with stirrer		
10.	Sugar syrup cooler		

11.	Sugar syrup storage tank		
12.	Sugar syrup transfer pump		
13.	Cip return pump		
14.	Cables & conduits inside skid		
15.	Control panel & instrumentation for syrup section		
16.	Interconneting pipes & fittins for syrup section		
C	**Pectin mixing tank**		
D	**Pulp /concentrate unloading & transfer section**		
1.	Pulp dump tank		
2.	Pulp transfer pump		
3.	Duplex filter		
4.	Barrel unloading pump		
E	**Beverage Blending Section**		
1.	Batching system		
2.	Beverage blending tank (single shell with agitator)		
3.	Transfer pump		
4.	Magnetic filter		
5.	Tubular strainer		
6.	High pressure homogenizer		
7.	Ready beverage storage tank (single shell with agitator)		
8.	Ready Beverage Transfer Pump		
9.	CIP Return Pump		
10.	Control Panel For Blending Section		
F	**Tubular Pasteurizer With Deaerator**		

G	**Three tank automatic cip section**		
H	**PET BOTTLE PACKING SECTION**		
1.	Pet blow molding machine		
2.	Rinser,filler & capper		
3.	Infeed air conveyor		
4.	Conveyor system		
5.	Cooling tunnel		
6.	Sleeve applicator machine		
7.	Shrink tunnel machine		
8.	Carton sealing machine		

Q. Aseptic Line

Q.1 Aseptic Juice Line (RTS beverages)

Sr.no.	Particulars	Capacity	Cost (in Rs. Lac.)
1	Preparatory line (conveyor, sorting & grading , washing, weighing)	2TPH	377
2	Processing line (fruit mill , pulper/ juicer, decanter)		
3	Syrup preparation line (Steam jacketed kettle, syrup filters)		
4	Mixing tank		
5	Aseptic line (sterilizer, filler, chiller, aseptic storage tank, packaging machines)		
6	Material handling equipment (trolleys, elevators, Hand Pallets truck, Forklift)		

Q.2 Aseptic line for fruit pulp (Multiple fruits)

Sr. No.	Particulars	Capacity	Cost (in Rs. Lac.)
1.	Preparatory line (conveyor, sorting & grading , washing, weighing)	3TPH	395
2.	Processing line (fruit mill , pulper)		
3.	Aseptic line (sterilizer, filler, chiller, aseptic storage tank)		
4.	Material handling equipment (trolleys, elevators, Hand Pallets truck, Forklift)		

Q.3 Mango processing plant-Aseptic Filling

Sr. No.	Particulars	Capacity	Cost (in Rs. Lac.)
A	**Fruit Preparation and pulp extraction section**	5TPH	536
1.	Fruit Washer		
2.	2-Tier Tip Cutting Conveyor		
3.	Bucket elevator		
4.	Mango destoner		
5.	Positive displacement pump with hopper		
6.	CIP pump		
7.	Puree refiner		
8.	Puree preheater		
9.	Decanter (model nx3651-ct)		
10.	Acid mixing & dosing system		
11.	Standardization tank		
12.	1 Set Piping and valves		
13.	Control Panel & wiring connections		
14.	Cables &Conduits		
B	**Waste handling section**		
1.	Waste Cross Collection Conveyor		
2.	Waste Screw Conveyor		
3.	Waste Screw Elevator		
C	**Aseptic Sterilization and Filling Section**		
1	Mono block Aseptic Sterilizer and Filler		

R. Canning line for fruit pulp (mango, guava etc.)

S. No.	Particulars	Capacity	Cost (Rs. In Lac)
1	Preparatory line (conveyor, sorting & grading , washing, weighing)	2 TPH	67
2	Processing line (fruit mill, pulper)		
3	Canning line (Reformer, Seamer, Continuous filler, Exhaust box,Retort, steriliser)		

S. Carbonated beverage/Drink production line

S. No.	Particulars	Capacity	Cost (Rs. In Lac)
1	Preparatory line (grader & sorter, inspection conveyor, washer)	1TPH	105
2	Juice extractor, decanter, Filtration unit, pasteurizer , Carbonation unit, Bottling line		
3	Material handling equipment (trolleys, elevators, Hand Pallets truck, Forklift)		

T. Dehydration

T.1 Spray dried fruit and vegetable

S. No.	Particulars	Capacity	Cost (Rs. In Lac)
1	Washer, sorting , grading , sorting table, Inspection table, fruit mill, pulper, filtration system, homogeniser, spray drying system, packaging machinery	0.25TPD	155
2	Material handling equipment (trolleys, elevators, Hand Pallets truck, Forklift)		

T.2.1 Dehydrated vegetables

S. No.	Particulars	Capacity	Cost (Rs. In Lac)
1	Primary processing (grading, sorting and grading), Peeler,slicer, dicer/ cutting, blanching unit, Continuous Hot air dryer	1TPD	135
2	Material handling equipment (trolleys, elevators, Hand Pallets truck, Forklift)		

T.2.2 Vegetable Dehydration Plant-5TPD

Sr.No.	Particulars	Capacity	Cost (In Rs. Lac.)
1.	**Raw Veg Process machinery lines:-**Raw material vibrator feeder Supply Bucket elevator for Round cleaner Round cleaner machine Continuous Vegetable washer machine cum elevator	2.5-3 TPH	14.85
2.	**Raw Vegetable Peel off line-** Dish type Peel off machine Collection Belt elevator to Conti. Washer Roller type Peel of machine Abrasive roller + brush roller Supply elevator – Roller peel off Mc to washer machine Continuous Veg. washer machine cum elevator	2.5-3 TPH	31.0
3.	**Dicing/Slicing/Blanching/Cooling Line-** Conveyor type metal detector Elevator to Dicer machine Dicing Machine(Imported) Spares Leafy vegetable slicer machine(Imported Cut vegetable collection conveyor belt Supply elevator to Continuous blancher machine Continuous Blancher Machine Supply Elevator to Drum Cooler orSulphitator Continuous Drum Cooler cum Suphitator Machine Dewatering vibrator screen Oscillation mountings Supply Conveyor to Dryer Feeder		133.00

4.	**Garlic pre- process line-** 3 in one Garlic De - cordicator, Elevator and Grader cum Cleaner Elevator for Garlic RoundGrader Round grader machine For Garlic Elevator for Garlic Chopping Garlic chopping machine Supply Conveyor to Dryer Feeder	2.5-3 TPH	26.60
5.	**Continuous Dryer Machine-** 1st STAGE 5 LAYER CONTINUOUS DRYER 1ST STAGE TO 2ND STAGE SUPPLY ELEVATOR 2nd STAGE 3 LAYER CONTINUOUS DRYER DRYER SECTION	5TPD	189.20
	GARLIC FINISHING MACHINES (After Drying)- Supply Conveyor to Garlic finish Section Elevator to Supply Garlic De skinning Garlic Skin removing machine Garlic De-stoner Machine Elevator to Supply Garlic Grading Spare mounting Spare screens	5TPD	21.40
	Grand Total		416.05

T.3 Amchur (Dry Mango powder) processing plant

S. No.	Particulars	Capacity	Cost (Rs. In Lac)
1	Preparatory line (Washer, slicer, fruit preparation tables)	6TPD (raw mango)	39
2	Dryer		
3	Hammer mill		

4	Packaging machines		
5	Material handling equipment (trolleys, elevators, Hand Pallets truck, Forklift)		

T.4 Garlic Dehydration Plant (1 TPD of raw material)

S. No	Equipment	Cost (Rs. in lacs)
1	Washer	25.00
2	Garlic bulb (root and stem with grading) cutter	
3	Garlic clove separator	
4	Garlic peeling machine	
5	Garlic slicing machine	
6	Dryer (Hot-air)	
7	Packaging machine	
8	Auxiliary equipment (Compressor, elevator, material handling equipment, weighing scales, working tables, storage container)	

T.5. Garlic Dehydration Plant (4 TPD of raw material)

Sr. No	Equipment	Cost (Rs. in lacs)
1	Washer	50.00
2	Garlic bulb (root and stem with grading) cutter	
3	Garlic clove separator	
4	Garlic peeling machine	
5	Garlic slicing machine	
6	Dryer (Hot-air)	
7	Packaging machine	
8	Auxiliary equipment (Compressor, elevator, material handling equipment, weighing scales, working tables, storage container)	

T. 6 Drying system for Onion & Garlic flakes and powder

Sr.No.	Particulars	Capacity	Cost (In Rs. Lac.)
1.	Inspection Conveyor	500 KG/Hr	690
2.	Top & Tail Cutting Table- By Manually		
3.	Peeling Cum Washing Machine		
4.	Slicing Machine		
5.	Imperial Automatic Dryer- 5 Belt For Onion & Garlic		
6.	Additional Heating Hot Air Dryer		

7.	20 lakh K cal/hr Boiler with thermic fluid heater with piping For Onion, Garlic & Vegetable (Both Dehydration Line)		
8.	Control panel		
9.	Flakes Grader		
10.	Flakes sorting room / Color Sorter		
11.	Metal Detector		
12.	Pulverizer for onion and garlic (200-300 kg/hr)		
13.	500 gm-1 KG FSS Packing Machine		
14.	10-50 KG Bulk Bagging Machine		
	Vegetable dehydration line		
15.	Inspection Conveyor		
16.	Washing Machine		
17.	Slicing Machine		
18.	Blanching (Hot Water Treatment)		
19.	Imperial Automatic Dryer- 5 Belt For Onion & Garlic		
20.	Additional Heating Hot Air Dryer		
21.	Control panel		
22.	Metal Detector		
23.	Chopper- 200 Kg/H		
24.	Pulverizer for Vegetables (200-300 kg/hr)		
25.	500 gm-1 KG FSS Packing Machine		
26.	10-50 KG Bulk Bagging Machine		

U.1 Ginger & Turmeric Processing Plant

Sr.No.	Particulars	Capacity	Cost (In Rs. Lac.)
	Inspection cum preparation conveyor	0.5TPH	8.2
2.	Washing system (0.5 tph) - 1st stage		22.3
3.	Washing system (0.5 tph) - 2nd stage		22.3
4.	Blancher		22.5
5.	Slicer		9.8
6.	5 belt imperial automatic dryer -500kg/hr		149.8
7.	Hot air conveyor		45.9
8.	Thermic fluid piping with thermic oil		113.8
9.	Metal detector4 Nos		26.4

10.	Flaking/chopping machine - 100 kg/ hr		12.5
11.	Vibro screen		11.8
12.	Hammer mill -1 & 2 for first & second stage Grinding impact mill + pneumatic conveying system + cyclone + pulse jet dust collector and rotary air lock valve		95.8
13.	Rotary sifter -100 kgs/hr		16.5
14.	Vibro screen		11.8
15.	Hand stitching machine4Nos		1.5
Grand Total			**570.9**

U.2 Spice Processing Plant; Capacity 0.5TPH (input)

S.No.	Particulars	Capacity	Cost (In Rs. Lac.)
	Primary Processing Line:- Infeed Conveyor Primary Washing Machine Floating type Washer Elevator	0.5TPH (Input)	12.20
2.	**Preparatory Line:-**		
	Slicer		4.13
	Inspection/ Sorting Conveyor (After Peeling & Slicing)		4.50
	Elevator (To Dryer)		3.70
3.	**Processing Line:-**		76

	Spice Powder Line Hot Air Dryer Belt feeder Aspiration System Dry Pulverizer Micro Pulverizer Vibro Shifter Screw Conveyor Automatic Powder Auger Filling Machine (Continuos Type) Product Piping Main Distribution Control Panel		
Total			**100.53**

V.1. Cashew Processing Plant

Sr.No.	Particulars	Capacity	Cost (In Rs. Lac.)
1	Steam boiler with cooker	1TPD of raw material	15.00
	Cashew cutting machine		
	Cashew dryer (electric) with trolley and trays		
	Humidification chamber		
	Cashew scooping/shelling line		
	Cashew peeling machine		
	Cashew kernel and piece separator		
	Tin filling machine and heat sealing		
	Auxiliary equipment (Material handling equipment, weighing scales, working tables)		

V.2. Cashew Processing Plant

Sr.No.	Particulars	Capacity	Cost (In Rs. Lac.)
1	Cashew nut cooker	5 TPD of raw material	72.00
	Steam boiler (shell cake/electrical)		

	Elevator		
	Storage tank for cooked nuts		
	Sizing machine with all accessories		
	Feeder for sizing machine		
	Shelling machine (mechanical)		
	Shelling machine (manual)		
	Scooping line with all accessories (feeding conveyor, bucket elevators, separator, roller for separating cut and uncut nuts etc. scopping machine, inpection conveyor, controlling units/panels)		
	Cashew dryer (electric) with trolleys and trays		
	Humidification system		
	Cashew peeling machine with elevator for feeding		
	Cashew separator (wholes, splits, half, testa)		
	Air compressor		
	Vibratory separator		
	Tin filling machine		
	Tin filling machine (nitrogen filling)		
	Auxiliary equipment (Material handling equipment, weighing scales, working tables)		

W. Cryogenic spice grinder plant at 2TPD

S. No.	Particulars	Capacity	Cost (Rs. In Lac)
1	Intake hopper and Bucket elevator; 1.5 ×0.6×3.0 (in meters)	2 TPD	6.1
2	Silo 500 kg with pneumatic slide gate		2.2
3	Cryogenic Spice Grinder Power of grinder :55kw Power of fan:5.5kw Power of feeder:1.5kw Capacity: 300 kgph Refrigerant: Liquid nitrogen Working temperature 0°C—-196°C Feed requirements ≤10mm Fineness 200 to 300 mesh 3.65 x 2.0 x 2.7 (in meters)		70.0
4	Liquid Nitrogen tank		30.0
5	Weighing and hand sealing machine for bulk		0.50

	packing		
Grand Total			108.8

X. Dehydration & Vinegar Processing Plant

Sr.no.	Particulars	Capacity	Cost (in Rs. Lac.)
1	Dicer/ cuber: 500 kg/hr.	0.5TPH	21..2
2	Multifunction vegetable Slicer/chopper: model bpm 309		
3	Blanching equipment		
4	Dehydrator: 48 trays		
5	Low temperature pulveriser (for Dried/dehydrated products)		
6	Working table		
7	Raw mango cutting machine		
8	Lemon cutting machine		
9	Vinegar tank insulated		43.3
10	Juice tank 1000 ltr		
11	Pasteurizer 1000 ltr		
12	Storage tank---1000ltr		
13	Linear filling machine		
14	Labelling		
15	Screw transfer pump: 500 lph		
16	Duplex filter: 500 lph		
	Vinegar generator		
	GC-BL paste filler: 2 head		
	Insulated overhead holding tank: 500 Ltr		
Grand total			**64.5**

Y. <u>Miscellaneous Equipment for Fruits and Vegetable Processing</u>

S. No.	Particulars	Capacity	Cost (Rs. In Lac)
1	Steam jacketed boiling pan	500 lts	1.0
2	Multi effect falling film evaporator	100Kg/h	35
3	Pulper	100kg/h	0.75
4	Juice extractor	100-200 Kg/h	7.00

5	Screw press		3.25
6	Colloid mill	100L/h	1.25
7	Homogenizer	200L/h	4.00
8	Batch mixing tank	500L	1.25
9	Steam jacketed syrup making tank	500L	2.25
10	Bottle washer	20 bottles/min	1.25
11	Slicing machine	100Kg/h	5.00
12	Cubing machine	100Kg/h	7.00
13	Bottle capping machine	10 bottles/min	0.75
14	Bottle crimping machine	10 bottles/min	0.20
15	Bottle labelling machine	20 Lables/min	5.00
16	Plate and frame filter press	100Kg/h	5.00
17	Sparkler filter	100L/h	1.75
18	Plate heat exchanger	200L/h	1.25
19	Sterilizer{Rotating type autoclave)	300Kg	44.00
20	Auto clave	150Kg	2.25
21	Pouch filler	10 Pouches/Minute(500 ml vol each)	3.00
22	Form fill seal machine	10-20 Pouches/Minute(500 ml vol each)	1.50
23	Can reformer		0.75
24	Can filler	10 can/min	4.30
25	Can seaming machine	10 can/min	1.25
26	Conveyor belt	12ft*2ft(L*W)	1.10
27	Tray dryer	100Kg/h	2.75
28	Drum dryer	65Kg/h	25.00
29	Spray dryer	65Kg/h	40.00
30	Small IQF plant	100Kg/h	57.00
31	Plate freezer	100Kg/h	31.00

****All the Plants and Machines/equipment are indigenous except few which have been marked as imported.**