

MINI FLOUR MILL

PRODUCT CODE (NIC)	:	10611
QUALITY STANDARD:	:	Atta wheat IS-1155/1968 Maida IS-1009/1968 Sooji or rawa IS-1010/1968
PRODUCTION CAPACITY	:	Atta 1435 MT Suji 240 MT Besan 342 MT Maida 240 MT
MONTH & YEAR OF PREPARATION	:	March, 2021
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INTRODUCTION

In the present project, staple food like rice, atta , suji , flour observing the local products available at the doorstep and to market the finished products in the nearby towns.

Wheat is one of the major item of food grain. It is grown in many parts. Wheat products are being used as flour, maida, suji and the bran and its products are being used throughout the country, even in rice eating areas of our country. In a roller flour mill out of whole wheat different products can be obtained in the following ratio:

Maida-30%

Suji-20%

Atta –40%

Bran and other –10%

MARKET POTENTIAL

Milling of wheat into flour (Atta) is one of the important processing operations. Wheat productions, storage, marketing, consumption practices and other techno-economic consideration in India have given rise to mills of indigenous design power operated disc mills (Chakies) are one of them. The milling of wheat is still largely (about 70%) done in chakkies in the country.

After the Agricultural Revolution (Green Revolution) production of agricultural product including wheat have risen manifold and large quantities of wheat are being produced in different parts of the country which has given wide scope to start wheat milling unit to meet the growing demand of the people for different wheat product specially wheat flour, suji, maida, etc. with the abundant availability of wheat and rising trend of consumption of wheat product there is very good scope of setting up new wheat milling unit in different parts of the country including West Bengal.

There are around 500 nos. of small scale units operating chakkies for wheat flour and around 100 no. of roller wheat milling units in different parts of West Bengal and still there is good scope for setting of more number of modern roller mills which can produce wheat flour, maida, suji, etc. India is one of the leading exporters of spices. The export earnings from spices can be increased quite considerably if the export of spices is encouraged in processed form, as it will bring more value addition to the unit price of whole spices. Further as it is a mass consumption item mostly used in culinary preparation or seasoning of food products, its internal demand is increasing quite steadily due to improvement in purchasing power of people. As Pulses are important source of proteins they are having good demand in every part of the country. With rising population the demand is further likely to grow manifold in near future.

BASIS AND PRESUMPTION:

1. All the prices in respect of machinery, raw material, etc. are taken as per those which are prevailing at the time of preparing scheme, which may vary, place to place and from time to time.
2. 70% efficiency of roller capacity utilization and single shift basis working
3. 8 hours in day & 300 working days in a year have been considered.
4. Interest rate taken @ 12%.
5. The entrepreneurs as own investment in implementing the project require margin money @ 30% of total project cost.
6. Minimum wages have been considered in the preparation of the scheme.
7. The endosperm part of the wheat is used for preparation of suji. In the first phase breaking the endosperm part is separated as coarse particles, which are collected through sieves.
8. 92% of total raw material is converted into finished product. In preparation of atta, bran is not separated, but in preparation of maida and suji bran is separated. 4%-5% of total wheat is converted into bran.

IMPLEMENTATION SCHEDULE:

1)	Preparation of project profile	7 days
2)	Selection of site	15 days
3)	Availability of finance	15 days
5)	Procurement of machinery	15 Days
6)	Erection and commissioning	15 days
7)	Recruitment of staff and trial run	<u>8 days</u>
		2.5 months

TECHNICAL ASPECTS:**Process of manufacture of wheat milling:**

The production process in brief consists of the following steps:

1. Cleaning of wheat
2. Conditioning/tempering of wheat
3. Bran removal
4. Grinding and sieving
5. Packing

The wheat on arrival at the Mill is first cleaned with the help of sifters manually to remove course materials like straw, seeds, and other lighter impurities. It can be done with the help of aspirator mechanically. A disc separator then removes larger or smaller materials and accepts individual wheat grains. The stream of wheat then passes over a magnetic separator that pulls out iron steel pieces. In the present scheme magnetic separator is not used. Nails etc. are detected manually and separated. The wheat is then allowed to pass through a water-washing unit, where high speed rotators spin the wheat in a water bath. Excess water is thrown out by centrifugal force. Stones drop into the bottom and are removed, whereas lighter materials float off leaving only the clean wheat. However, the washing etc. is carried out manually in this scheme. Tempering is a process in which moisture is added. It aids in the separation of bran from the endosperm and helps provide controlled amount of moisture and temperature throughout the milling process. The dampened wheat is held in a bin for a prescribed period from 8 to 24 hours. With 16% moisture content the grain is passed through a scouring aspirator machine the wheat flows to a grinding bin or hopper from which it is fed in continuous controlled stream into the mill itself.

First the grain is passed between horizontal rollers called the “Break Rolls”. These rollers are fluted and the upper roller revolves with more speed as compared to the lower one. The grain gets broken here.

The broken particles of wheat then pass to a shifter where a series of vibrating blotting cloths or screen separate the larger from the smaller particles. The scalped fractions and particles of endosperm graded by size are carried to separate purifiers where a controlled flow of air lifts off, bran particles and bolting cloth at the same time separates and grades coarser fractions by size and quality.

Four to five additional “break” rolls with successively finer corrugations and each followed by a sifter, usually rework the coarse stocks from the sifter and reduce the wheat particles to granular “middlings” as much free from bran as possible. Germ particles being somewhat elastic will be flattened by later passage through the smooth reduction rolls and can then be easily separated. The reduction rolls reduce the purified granular middlings to flour.

Maida, suji, atta and bran thus obtained are collected separately in jute bags of different specifications and stored at cool and dried place. Percentage yields from good quality wheat are as follows:

Maida	55%
Suji	5%
Atta	20%
Bran and refractoriness	20%

Alternate technology:

Wheat can also be processed in chakkies but for bulk production and quality product roller mills are used.

Quality Control/Specn.

For production of good wheat products good varieties of wheat should be selected which is to be stored properly and dried before milling. All working environment and machinery should be clean and kept under hygienic condition. BIS has published IS Specification for wheat products.

Atta wheat	IS-1155/1968
Maida	IS-1009/1968
Sooji or rawa	IS-1010/1968

Which can be followed for proper quality maintenance.

MOTIVE POWER: 80 KW

Pollution Control:

Though this industry is not much polluting industry towards the environment, the NOC should be obtained from concerned District Industries Centre. The workers should use proper personal protective equipments (PPE) like mask and hand gloves while operating machines and other works. Packing and production section should be made dust free and completely hygienic.

Energy Conservation:

There is not much scope for energy conservation. However, proper selection of machine, motors, timely maintenance of machinery and tools may save quantity of energy.

FINANCIAL ASPECTS:

Land: 40 Decimil	Own
Shed: 5000 sq ft. @ 700/sq.ft.	Rs. 35,00,000/-
Boundary, watchman shed 2000 sq.ft. L.S	<u>Rs 2,00,000/-</u>
	Rs 37,00,000/-
Open space for drying wheat 25 decimal	

Roller Flour Mill: (CLEANING SECTION):

S.no	Specification	Qty.	Value in Rs.
1.	RCC Pit shooting with cover net	1	28000
2.	Shooting Elevator	1	35000
3.	Reel machine with 3 cover nets	1	45000
4.	Elevator from reel to separator	1	32000
5.	Rotary Separator with cover net	1	75000
6.	Elevator from separator to destoner	1	32000
7.	Double deck destoner	1	115000
8.	Intensive damper	1	65000
9.	Elevator from damper to scourer	1	32000
10.	Scourer	1	55000
11	Polisher	1	45000
12	Elevators from and to silos	2	64000
13	Conveyors Worm at top & bottom of silo	2	44000

14	Aspiration unit comprising of cent. Fan, super cyclone, airlock, manifold, air trunk line ,bend segments, branch lines, Valves etc. for cleaning section	1	78000
15	Aspiration unit comprising of cent. Fan, super cyclone, airlock , manifold, air trunk line, bend segments, branch lines ,Valves etc. for destoner machine	1	55000
16	Magnet box	2	7000
17	Slide gate for shooting elevator	1	3000
18	Storage bin over milling roller mill	1	6000
19	Slide gate for shooting elevator	1	3000
20	Packing spouts for refraction packing	3	12000
	Total of cleaning section		831000

MLLING SECTION :

S.no.	Specification	Qty.	Value in Rs.
1	Flour roller mill complete -1000 mm	1	250000
2.	Chilled C.I Rollers	4	260000
3.	Horizontal stone grinders heavy duty	3	57000
4.	4 feed 14 high plan shifter complete	1	125000
5.	Collection worms beneath plan shifter	1	28000
6.	Storage bins over stone grinders	3	9000
7.	Automatic Packing machine	2	578000
8.	Pneumatic conveying system comprising of high pressure fan with 15 H.P motor , pneumo small cyclones , feeders, airlocks, lift pipes ,rubber sleeves ,super cyclone, u clamps ,etc.	1	210000
	Total		1517000

Miscellaneous:

S.no.	Particulars	Qty.	Value in Rs.
1	Gravity pipes ,dividers ,tees, yeas	1lot	90000.00
2	Fabrics for plan shifters	1 lot	26000.00
3	Spare rolls	2	130000.00
4	Spare stones	3	9000.00
5	Reduction gear units	9	81000.00
6	Couplinks, motor pullies, v-belts	1 lot	40000.00
7	Line shaft assembly for elevators	1	<u>58000.00</u>
	Total		<u>434000.00</u>

S.no.	Installation & structures	Qty	Value in Rs.
1	Joist, Channels, angles, rounds, bars, for installation and foundation	1 lot	85000.00
2	Joist, Channels, angles, rounds, bars, for platform and structure	1 lot	160000.00
3	Office furniture & others	<u>LS</u>	<u>20000.00</u>
			265000.00

Electrical:

1. Electric motors of assorted sizes and RPM	total 25 nos.
2. Starters & main switches for motors	
3. Fuses with terminal boxes	
4. Main panel bush bars	2 nos.
5. Cables & wires (with main cable)	
6. Wings for lights & fans	
	Total: Rs 6, 25, 000/-

Pre-operative expenditure :	Value in Rs.
Preparation of project profile	5000
Stationery	5000
Travel	25000
GST registration	20000
Electric connection with transformer	350000
Advance for packaging material	<u>100000</u>
Total	505000

TOTAL FIXED CAPITAL INVESTMENT:

$3700000+831000+1517000+ 434000.00+265000+625000 +505000 = \text{Rs } 78, 77, 000/-$

Working capital:-

Raw material (per month)

To prepare 40 MT suji, 30 MT Besan, 130 MT Atta,):

S.no.	Particulars	Value in Rs.
1	Wheat 170 MT @ Rs.16/ kg	2720000.00
2	Dal 30 M.T @ Rs 35/Kg	1050000.00
3	Woven sacks & packing materials	50000.00
4	Lubricants, misc. exp	<u>40000.00</u>
	Total	3860000.00

Staff and Labour (P.M.):

Sl no	Particulars	Number	Values in Rs
1	Works Manager	2	26000
2	Accountant	1	10000
3	Skilled labour	10	80000
4	Unskilled labour	12	72000
5	Sales man	3	30000
6	Peon/watchman	4	<u>30000</u>
		Total	248000

Utility (P.M.):

Particulars	Values in Rs
Electricity (Industrial) 20000 @ 10/unit (Including all Charges)	200000.00
Water Charges	LS <u>14000.00</u>
	Total 214000.00

Other expenditure

	Amount in Rs
Travel and transport	70000
Maintenance	20000
Telephone	5000
Stationery	10000
Insurance	10000
Misc. expenses	<u>5000</u>
Total	120000.00

Working capital per month:

$$= 38,60,000 + 2,48,000 + 2,14,000 + 1,20,000 = \text{Rs. } 44,42,000/-$$

TOTAL CAPITAL INVESTMENT:

Particulars	Amount in Rs
Fixed capital	7877000
Working capital for 1months	4442000
Total	12319000

MEANS OF FINANCE:

Promoters contribution 30%	3695700
Bank loan 70%	8623300

Cost of Production (Per Annum):

Particulars	Amount in Rs
Total recurring expr.	53304000.00
Depreciation on machinery @ 15%	417300.00
Depreciation on furniture @ 20%	4000.00
Depreciation on shed @ 5%	175000.00
Interest on bank loan for capital invt.@12%	1034796.00
<u>Total</u>	54935096.00

TURNOVER (per annum):

Particulars	Rate	Price In Rs
Atta	1435 MT@ 21/kg	30135000.00
Suji	240 MT @ 39/kg	9600000.00
Besan	342 MT @ 39/kg	15390000.00
Maida	240M.T.@ 20.5/Kg	4920000.00
		60045000.00

PROFIT: Turn over – Cost of Production
= Rs. **60045000** - Rs. **54935096** = Rs 51,09,904/-

NET PROFIT RATIO = $\frac{\text{Profit} \times 100}{\text{Turnover}}$ = 8.51 %

RATE OF RETURN = $\frac{\text{Profit} \times 100}{\text{Investment}}$ = 41.48 %

BREAK EVEN ANALYSIS:**Fixed cost per annum:**

Particulars	Amount in Rs
Depreciation on machinery @ 15%	417300.00
Depreciation on furniture @ 20%	4000.00
Depreciation on shed @ 5%	175000
Interest on total capital invt.@12%	1034796.00
Insurance	120000.00
40% of salary	1190400.00
40% other expr. excluding insurance	528000.00
Total	34,69,496.00

$$\text{B.E.P.} = \frac{\text{Fixed cost} \times 100}{\text{Fixed cost} + \text{profit}} = \frac{3469496}{5109904 + 3469496} = 40.44 \%$$

ADDRESSES OF MACHINERY SUPPLIERS OF WHEAT MILL:

1. M/s.Food Implement Agencies (P)Ltd., 401, Akash Deep, Barakhamba Road, New Delhi-110001.
2. M/s.Karnataka Implements & Machinery Ltd., Mysore Road, Bangalore-560026.
3. M/s.Gemini Engineers, F-4, I.D.A.Kukutpally Via Gandhi nagar, Balanagar, Hyderabad-500037.

Addresses of Raw material suppliers – local dealers.

Addresses of Auto Filling and Sealing Machinery:

1. M/s.Jai Machineries, 9, Ezra Street, Kolkata-700001. Tel.2253711.
2. M/s.Cannon Engg.Industries, 7/152/7, G-21 Ravi complex, Fathen nagar, Hyderabad-500018.
Local office: N-6/444, Nayapalli, Jaydev vihar, Bhubaneswar.
3. M/s.Kalinga Packers, N.I.E., Jagatpur, Cuttack (for cartoons).
4. M/s.Jaydurga Packers, N.I.E., Jagatpur, Cuttack (for Cartoons).
5. M/s. Galaxy Packing Machine, Circular Road, Near Novelty Cinema, Ambala City-134002, Haryana.