

## Project profiles (guideline)

### 1> Corn flake



### 2> Agro waste fuel - *Briquett*



### 3> TUTTY FRUITY



### 4> NOODLES



### 5> BIO FERTILIZER( BIOCUMPOST)

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Important: Reader is requested to carefully collect exact information before implementing his project.

This is personal opinion of compiler. This information should not be treated as full and final or final tool to take decision.

## **[1] CORN FLAKE**

### ***Introduction***

In 21<sup>st</sup> century people have started to become health aware and cautious about their food. They are demanding food with nutrition value. In developed countries many health cautious people have accepted Maize produce as healthy food. CORN Flake made out of Maize has taken its place in breakfast plate. Roasted maize flakes mixed in sweet milk is now health food, Health cautious mothers are giving corn flakes to their growing children. Corn flakes are sweetened, flavored with peanut butter and covered in compound chocolate to create the Butterfinger candy bar, among other imitators. Variety of different recipes for dishes involving corn flakes exist. Corn flakes can be offered in a huge variety of flavors, such as Banana, mango, strawberry, chocolate, and many more.

#### ➤ ***Raw material***

Maize is basic raw material which is agriculture produce and easily available in Gujarat and also most part of India.

**CFTRI Mysore** has developed technical knowhow.

#### ➤ ***Market potential***

Maize is good for health. Maize flour is very popular in many part of our country and maize flakes are being accepted as health food as life style is changing. There are potential market opportunities for selecting this agro food (processed food). Large number of young consuming class and growing higher middle class with growing disposable income is influencing for development of Cornflake market. People are changing their breakfast habit.

Working women, School children should be main target for marketing of cornflakes as it is very much convenient and easy to prepare have good nutrient value.

#### ➤ ***Process of manufacturing of Corn flake***

Collect Harvested maize, nuts are removed and are cleaned removal of stone, dust etc. and graded by their size.

Big size nuts are (for quality) selected for corn flakes and then soaked in hot water to make hard nut soft, after that wet corn nuts are sent to drier, after roasting they are sent to flaker where Corn flakes take shape all corn flakes are then passes through sieves which separate small, broken and Big corn flakes are. Big and quality flakes are then sent to packaging department. Through

industry source it is found that manufacturing waste may be 20% out of which 15 may be use as by product.

➤ *By -product*

Broken corn, broken corn flakes use for cattle feed this by product selling income may be profit increasing

➤ *Land require for plant and machinery*

150 sq. mtrs. to 175 sq. mtrs.

**Manufacturing Process**

Manufacturing (Produce line)

→ Mixing → Boiling → Pressing → Drying → Inflating

- Collect Hard corn
- Regulate the moisture with the hot steam or hot water @ 85+°C.
- Add the salt / vitamin or other
- Drying: dry at 60°C until the moisture reduce to 20%,
- Press the flake with steel roller for chips to be evenly distributed.
- Roasting: Then roast flakes then fry the chips the corn chips will be crispy.

Spraying flavor / nutrient, flavor if necessary.

The level of automation is very high and can be finish in one time.

Installed capacity 120KW

Power consumption 80KW

Output 120-150kg/h

Dimension of Machine may be 50000\*2500\*3000mm

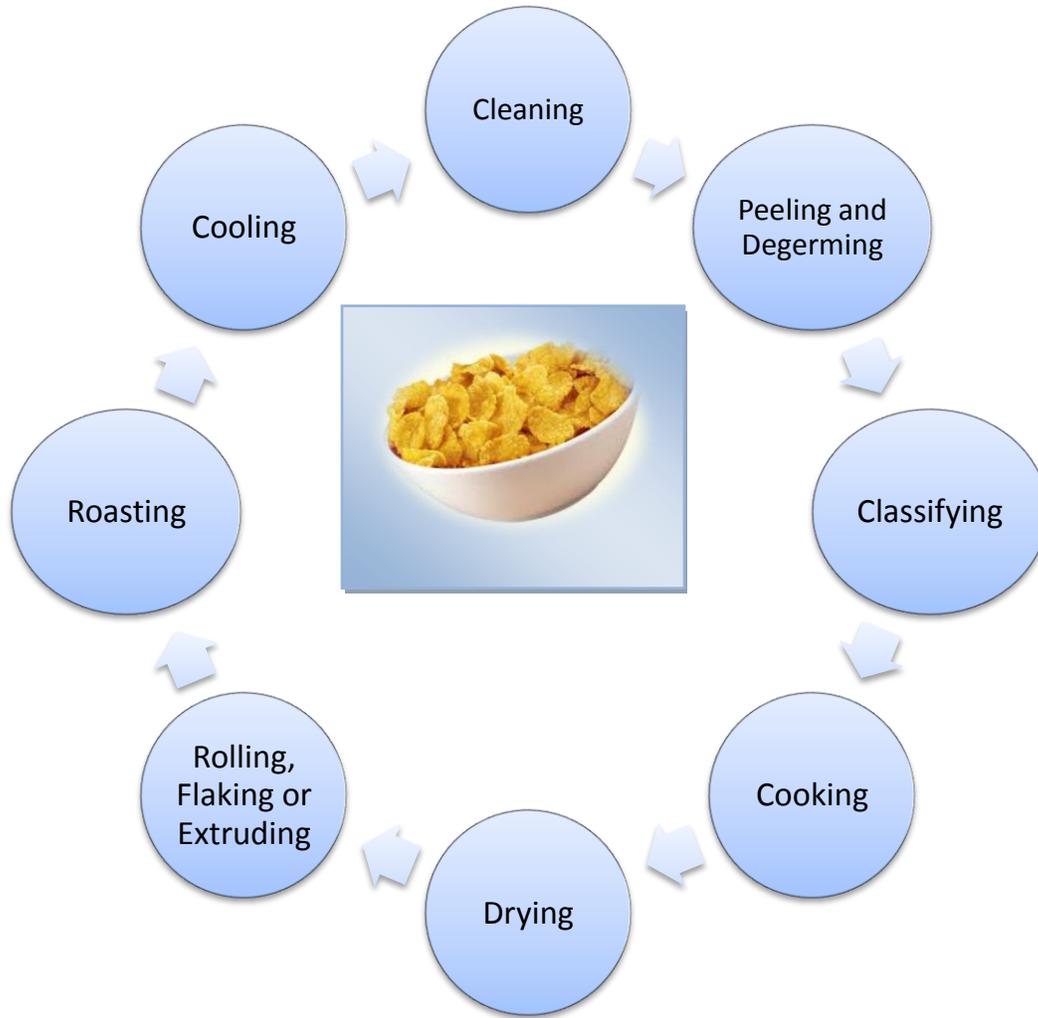
➤ *Production line Machines of the corn flakes*

1) Mixer →Screw conveyor	2) Double-screw extruder
3) Cooling machine → Air blower	4) Chips making machine → Air blower
5) Dryer →Vibrator	6) Coating drum → Sugar sprayer → Vibrator
7) Dryer Cooler	

***Raw material availability:***

Gujarat :

Sabarkantha, Banaskantha, Dahod, Panchmahal



source <http://in.images.search.yahoo.com>

<http://www.flakermachine.com>

<p><b>Pearled Grain</b></p>	<p><b>Soaking</b></p>	<p><b>Drying</b></p>	<p><b>Corn flaking</b></p>
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## [2] Agro waste fuel – *Briquettes* (*Converting Bio-mass to Briquettes*)

It is estimated that India generates about 500 million tons of agro waste annually. Agro fuel first came in light aftermath of oil crisis in 1980. Energy is key factor for economic development activity for all, wheather it is Developed or Under developed country.

Many countries and their policy makers came forward in support of production of Agro-fuels as a substitute of petrolium product and it is promoted aggressively.

### ➤ *Bio mass Briquetting*

To convert agro forestry waste in to Bio coal is called bio mass briquetting, a specially deisgned machine which binds any agro forestry waste in to Briquettes or we can say Bio coal or white coal.

#### ➤ *Source of raw material*

Source of agro waste is Baggage, Rice and wheat straw and husk, Cotton stalk, ground nut shell, banana stalk and jute, sisal and vegetable residues and many more. Jathropa and Corn are two main plant / crop for the source of agro fuel. Jathropa seeds contain more than 30 % content of non-edible oil. Main benefit of Jatropa is that it grows in the wild, does not require irrigation Project and can be harvested about two years of planting.

### ➤ *Market potential*

Demand of energy is continuously increasing against Limited supply results in to huge gap between demand and supply, natural resource are very limited and continuously reducing its quantity. One has to think of re cycling or finding non conventional source of energy i.e. Solar energy, Wind energy and Agro waste fuel. As Nuclear power, Electricity price is continuously increasing, industry will definitely opt for cheaper fuel option. Agro waste fuel is one of them.

### ➤ *Potential application of Briquettes*

1. Spinning / Textile mills	2. Dyeing plant
3. Solvent extraction plant	4. Food / vegetable processing plants
5. Chemical plants	6. Lamination industries
7. Milk plants	8. Bricks making

➤ ***Benefit of Briquettes***

1. Unlimited availability of raw material as compare to natural resource like Coal, crude oil
2. Cheaper than both crude and coal
3. Non harmful to environment
4. Briquettes give much higher boiler efficiency
5. It produce low ash
6. Easy to store and transport
7. Mostly no binder required thus reduction of cost

➤ ***Manufacturing Process***

Collect agro waste → Put in crusher → Dryer → Bio-mass briquette machine → Cooling → Finished product



*Bio mass Briquetting machinery*

➤ ***Land require for plant and machinery***

Total land required 1.25 acre (approx.)

For machine room 25 feet x 35 feet and 15 feet high

Around one acre for storing Agro waste ( raw material)

➤ ***Machines for Briquettes***

[www.lehrafuel.com](http://www.lehrafuel.com)



[www.jkbriquettingplant.com](http://www.jkbriquettingplant.com)

[www.gurukirpa.com](http://www.gurukirpa.com)



[www.radheengineering.com](http://www.radheengineering.com)

### [3] TUTTY FRUITY

Tutty-fruity is food item consumed directly or mixed as ingredient in Ice cream, Panmasala, Bakery product. It is made from unripe papaya fruit. It is very easy to get raw material. There are 3 major usage [1] Used in ice cream mix [2] Sweet / Bakery [3] Pan masala (Mukhvas) [4] Shrikhand (made out of sweet curd)it is consumed by people after their meals (lunch / dinner). Thus it is industrial (Food processing) as well as FMCG product. Target group of this product is Elder, Young and Children. Generally it is available in Red / Yellow Green colour.

#### **RAW MATERIAL :**

In India papaya is grown on 0.957 lakh hectares and its production 39.14 lakh tonnes. Gujarat state has area of 15300 hectares under papaya crop with the production of 832900 tonnes.

Source : G.J. B.A.H.S., Vol. 1(2) 2012: 10-17 ISSN - 2319 – 5584

As plantation of papaya is very easy, raw material is easily available at very cheaper rate in Gujarat.

#### **MARKET OPPORTUNITY:**

This is mass consumption item as it is consumed across the country. Tutty-fruity can be put in both industrial as well as FMCG product category as it is used by Food processing / Ice cream making companies. Bakers are also using Tutty-fruity and also it is directly consumed by elder to children or with pan masala by adult. So far as Gujarat is concern there are 10 big player of ice cream like VADILAL, HAVMOR, GOKUL, VIMAL and there are also small regional players in big town of Gujarat like RAJKOT, BHAVNAGAR, BARODA,SURAT and small town like Mehsana, Palanpur, Nadiad, Godhra, Dahod where local ice cream/sweet/bakery item manufacturers are using Tutty-fruity. There are also local players in small village / tourist destination like Dwarika, Somnath, Ambaji,Champaner, Sasan Gir, Ajawa Nimeta, Rajpipla etc. Tourist can also be targeted for consumption of Tutty-fruity apart from domestic use.

#### **TECHNICAL KNOWLEDGE REQUIRED (KNOW HOW)**

It is easy to produce Tutty-fruity as there are main two process cutting, pilling and drying. Operating knowledge of cutting machine and drying machine is required.

## **RAW MATERIAL AVAILABILITY**

Papaya is grown in considerable quantity in Gujarat. This can be grown easily as no special care is required for papaiya plant. In India papaya is grown on 0.957 lakh hectares and its production 39.14 lakh tonnes. Gujarat state has area of 15300 hectares under papaya crop with the production of 832900 tonnes.

**SOURCE: G.J. B.A.H.S., VOL. 1(2) 2012: 10-17 ISSN - 2319 – 5584**

## **MANUFACTURING PROCESS**

To get the final product Tutty-fruity one has to go through following process

- ❖ Collecting unripe papaya from growers
  - Washing
  - Blanching
  - Soaking in Sugar syrup
  - Seasoning
  - Cleaning and drying
  - Cooling and packing

Washed papaiya is bring for outer skin removal after removal of skin they are cut length-wise so that seeds are removed. These pieces are blanched in boiling water for 15 minutes and after cooling they are pricked and put in another vessels so that sugar syrup gets absorbed easily. Pieces of papaya are added in boiling sugar syrup and kept upto 5 to 10 minutes. Then these pieces are kept for around 8-10 hours. Colour / flavor may be added in syrup. Then these slices are further cut in smaller. Excess sugar coating and dust / dirt are removed before they are dry. After drying it is packed for final dispatch. To reduce the cost it is packed in polythene bags.

## **LAND PLANT MACHINERY REQUIRED**

The main machineries are peeling machine, electrically operated driers, heat sealing machine etc. .

- For mfg. Plant one required                      225 to 25 Sq mtr. land
- Main production area required                    100 to 125 Sq. mtr.
- Store / Packaging area                              75 sq mtr.

### Plant and Machinery:

- ✓ Papaya Peeling machine
- ✓ Papaya slicing and cubing machine
- ✓ Diesel Furnace
- ✓ Electrically operated driers
- ✓ Now a day Solar driers are also available it may be economical as there will be no recurring expenditure.

Above machinery may be cost Rs.3 to Rs3.50 lakh

### **LEGAL FORMALITIES**

As this is food product one has to strictly make compliances under the FPO and PFA Act and Food Safety and Standard Authority of India (FSSAI).

### **MANPOWER REQUIRED**

Production Supervisor	[ 2 ]
Skilled worker	[ 3 ]
Semi skilled worker	[ 2 ]

## [4] NOODLES

Noodles are speedily becoming popular breakfast in India because it can be cooked instantly requires only water and small pack of premixed spices. It is made of maida one kind of fine flour. Noodle is made from blend of flour. This product falls under instant food category noodle is one of the most conventional food available in the Indian market. Noodle is eaten in different ways like cooking, frying etc. **MAGGI** is one of the strongest brands in Indian market.

### **RAW MATERIAL**

In India there is ample production of wheat hence raw material flour (Maida) is easily available.

### **MARKET POTENTIAL**

Noodle has already been popular in developed countries, In India since 15 + years noodles has started to increase its share in instant food market segment. In very short period it has become popular. Following factors are governing its demand.

- Increasing number of nucleus family
- Increasing number of working women
- Changing life style
- Convenient in both preparing and eating
- Cheap
- Increasing population
- Increasing purchase power and many more...

### **UNIQUE MARKETING**

If entrepreneur cannot compete against big brand he should cater local market in small town / village. One can get contract under mid meal scheme, can start his own **INSTANT FOOD STALL** where there are Mela, Huge construction site, Garden, fountain zoo or any public entertainment place.

### **TECHNICAL KNOWLEDGE REQUIRED**

As noodles can be produced Automatic and manually (small quantity) entrepreneur can select his knowhow as per he select production method i.e. Automatic or manually.

## **MANUFACTURING PROCESS**

The major component of noodle is tapioca flour and maida. The noodle is manufactured in different sizes and shapes like straight, round etc. Starch Sodium bicarbonate, salt and edible color are other ingredients in addition to Maida.

### **PROCESS :**

Maida, starch and soda bicarbonate are blended in a specialized mixer need base edible color is added for giving color to noodle. These ingredients are mixed in boiled water for 20 minutes in dough mixer. This kneaded dough is then transferred to noodles making machine automatic or manual where desired design shape grill is fitted. Shape less noodle is cut to size for drying it is put on polythene sheet or on flat wooden bed. Drying is done by giving indirect sunrays it may be placed in shade, however to gain quality and long shelf life the noodle is exposed to steam.

### **QUALITY CERTIFICATION LEGAL LICENSING**

As noodle is food product one has to check quality standards, final product must meet The Prevention of Food Adulteration Act & Rules (PFA)

BIS specification for Noodles is BIS IS 1485:1993 (R2005).

Land building machinery requirements :

Approximate :

Land	1000 Sq.Mtr.
Constructed shed	225 Sq. Mtr.

### Machinery and Equipment

- Mixer (for dry powder) (vertical type)
- Dough mixer blade
- Different die (for different shape to noodle)
- Noodle making machine Manual / Automatic
- Polyethylene covered wooden sheet (for putting prepared noodle)
- Water boiler (Solar heater environment friendly / reduce recurring cost)

Above machinery approximately cost Rs. 9.75 lakhs

## **5> BIO FERTILISER (BIO COMPOST)**

### **WHAT IS BIO FERTILISER**

These are cultures of micro organisms i.e. fungi and bacteria packed in a carrier material. The micro organisms help the plants indirectly through better Nitrogen input which improve the nutrient availability in the soil.

Bio fertiliser is highly sophisticated product however entrepreneur can produce from bio waste like fruit and vegetables waste, agro waste, cow dung, urine etc.

### **BACKGROUND:**

In India currently soil management is mainly dependent on inorganic hazardous chemical-based fertilizers, which has been main cause and serious threat to human health and environment. To curb this damage Government of India, State governments, NGO's and farmers have started to use bio-fertilizer as an input which plays an important role in food safety and sustainable crop yield. These eco-friendly approaches inspire more and more farmers to use bio-fertiliser. It not only saves our environment but also increases crop yield and solve problem of garbage, agro waste.

Chemical fertilizers are industrially manipulated it requires lots of costly chemical that is why this fertilizer is costly which results in increasing of crop production. The innovative farm production is attracting the growing demand of bio-fertilizer/ organic fertilizers.

### **MARKET POTENTIAL:**

Since last two decade, worldwide farmers have been opting for organic farming that not only ensures food safety but also adds to the biodiversity of the soil. Looking to environment and soil health effect Government of India is also encouraging organic farming in association with different state government. More and more people across the world are demanding organic food. Bio-fertilizers keep the soil environment rich. As bio-fertilizer has multiple beneficial impacts on the soil, it is relatively cheap and also convenient for use, demand of bio-fertilizer is continuously increasing across the country.

Due to increasing of organic farming area and promotion of sustainable farming practices in India, it is estimated that there is scope for adding new units which will cater increasing demand of bio fertiliser. Major use of biofertiliser products are

mainly in cultivation of sugarcane, pulses, cereals and plantation crops, demand is expected to increase since vast cultivation areas have been covered in these crops and plantation.

### **BENEFITS OF BIOFERTILISER**

It gives nutrient supply to the crops, also its application add life to the soil, it stops damage to soil by the excess use of chemicals, apart from these it possess growth promoting substances and also reduce diseases possibility to crop. Above all usage of bio fertiliser is must for opting organic farming.

### **GOVERNMENT SUPPORT:**

In Gujarat Government of Gujarat is giving financial support in for of subsidy to produce bio fertilizer out of cow dung. The financial support is 50% of total cost or maximum Rs.50,000/-

### **BARRIER :**

Main barriers may be faced by the producers and investors is inadequate demand (as many farmers have to be convenience) Inconsistent and seasonal nature of the bio fertilizer demand, so far farming is concerned it required only when there is crop in the field.

- ISI standard IS: 9138-1979 (Specifications for Azotobacter)
- ISI Standard IS: 8268-1986 (Specifications for Rhizobium)

### **INFRASTRUCTURE REQUIRED:**

If one wants to start on big way and sophisticated plant total cost of project including land and infrastructure is less than Rs.73.00 lakh., with 150 tonnes per annum production capacity. However it can also be produced by investing small amount at initial stage, by using cow dung, urine, agro waste, vegetable and fruit waste and earthworms.

Raw material

Cow dung, urine, agro waste, vegetable and fruit waste and earthworms.

It is very easy to produce bio fertiliser on small scale. Total 2000 sq feet cover area is required for producing and 150 sq feet for packing.

Civil works 6 x 3 constructed with thin wall of bricks, depth should be 6 feet top should be covered with galvanised sheet.

Manpower required:

02 Unskilled labour

Machinery / equipment:

- 02 Shovels (Pavda)
- 05 Tagara (Gamela)
- Sprinkler system
- 6 x 3 height (3 feet) constructed area
- 8 x 5 Shade

Raw material

Agro waste, Soil, cow dung, water

Approximate cost of project is To.1.50 lakh to 2.00 lakh



## GUIDELINE FOR PREPARING PROJECT REPORT

Particular	Amount in Rs.
➤ Land and Building	
➤ Plant and Machinery incl. Installation	
➤ Miscellaneous Assets	
➤ Preliminary & Pre-operative Expenses	
➤ Power connection Expenditure	
Total Rs.	

Working capital	Amount in Rs.
1. Raw material	
2. Semi finished goods	
3. Finished goods	
4. Debtors (Credit sales)	
5. Working (misc.) expenses	
Total Rs.	

### *Total cost of Project and Means of Financing*

Item	Amount in Rs.
1. Land and Building	
2. Machinery	
3. Miscellaneous Assets	
4. P&P Expenses	
5. Contingencies	
6. Building and Plant & Machinery	
7. Working Capital Margin	
Total Rs.	

Means of Finance	Amount in Rs.
Own (Promoters') Contribution	
Loan from Bank	

Production Cost	Amount in Rs.
Monthly recurring expenses	
➤ Raw material	
➤ Packing material	
➤ Salary & Wages including perks	
➤ Transport Expenses	
➤ Electricity Expenses	
➤ Office expenses	
➤ Stationery	
➤ Travelling	
➤ Communication/Mobile/Internet	

➤ Repair & Maintenance	
➤ Stores & Spares	
➤ Insurance/Taxes Etc.	
➤ Other unforeseen Expenses	
Total Monthly Expenses	

**Total Annual Expenses**

**Amount in Rs.**

Total Monthly Expenses X 12	
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**Annual Cost of Production**

**Amount in Rs.**

Total Annual Expenses		
Interest on Term Loan	Rs. _____ @ ____ %PA	
Interest on Working Capital	Rs. _____ @ ____ %PA	
Depreciation on Shed		
Depreciation on Machinery		
Total Annual Cost of Production Rs.		

**Annual Sales Revenue**

Product/By-product	Quantity	Price	Amount
Total Annual Sales Revenue			

**Annual Profit Calculations**

Annual Sales Revenue	
Less Annual Cost of Production	
Profit before Taxes	
Less Provision for Income Tax	
Net Profit after taxes	

“ *The Break-even point (BEP) is the point at which cost or expenses and revenue are equal* “  
*Formula of BEP*

*(Fixed Cost X 100)/ (Sales Revenue – Variable Cost)*

*Using the above formula BEP is derived on the % of Capacity Utilisation considered in the above calculations*

Total production divided by total cost will give 1 Kg. or Per no or per unit cost to include profit and then one can derive per Kg. selling price. **[19/5/2014]**

