Maize Processing Unit

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>60,900 MT/Annum</td>
</tr>
<tr>
<td>Plant and machinery cost:</td>
<td>420.00 Lakh</td>
</tr>
<tr>
<td>Working Capital:</td>
<td>0.00 Lakh</td>
</tr>
<tr>
<td>Rate of return(ROR):</td>
<td>28.00 %</td>
</tr>
<tr>
<td>Break Even Point (BEP):</td>
<td>59.00 %</td>
</tr>
<tr>
<td>TCI:</td>
<td>1229.00 Lakh</td>
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<tr>
<td>Cost of Project:</td>
<td>1229.00 Lakh</td>
</tr>
</tbody>
</table>
Maize is one of the cereal grains which has been produced throughout India and is placed 3rd position in agricultural base production. Maize is constituted by hull, germ, protein, starch and moisture. There is dry and wet milling process of manufacturing of starch, zein, germ and hulls. Starch is the basic constituent of maize and it is converted to liquid glucose by adopting series of digestion steps on starch. It will be basically enzyme and acid digestion system. It may be enzyme - enzyme system or only acid digestion system. In the production of liquid glucose there is some production of dextrose anhydride. Starch is a tasteless, odorless, white amorphous powder, insoluble in water. All green plants store Starch as nourishment for the future. Starch is one of the fundamental substances in the vegetable kingdom and is in existence abundantly in the natural world. Starch is produced from various sources such as corn (maize), tapioca etc. Starch is a mixture of two polymers namely amylase and amylopectine. Uses Pure Starches can be physically modified into various products of varied characteristics. Starch can be potentially used in large number of preparations. Its major applications are in textiles and paper manufacture and in food and pharmaceutical industries. Starch is used in the manufacture of number of products such as starch esters, starch phosphates, glucose, dextrose, sorbitol, ethyl alcohol etc. Glucose syrup is used in hard boiled sweets and many dairy products, as a granulating agent for tablet coating and as a vehicle for orally administered medical syrups in pharmaceuticals. Glucose syrup is used in the manufacture of canned foods, confectionery, bakery products, ice-creams, chewing tobacco, shoe polish and leather chemicals. Sorbitol is used as raw material for the manufacture of Vitamin-C and also as basic additive material in toothpaste, creams, cosmetics, paper and numerous food products. It can also be used as stabilizer and antioxidant in PVC resins, protective coatings, urethane rigid foams, elastomers etc. Market survey Maize (Corn) contains about 70% starch, other components being protein, fibers and fat. The basis of the maize milling process is the separation of the maize kernel into its different parts. Maize starch is produced by the wet milling process, which involves grinding of softened maize and separation of corn oil seeds (germs), gluten (proteins), fibers (husk) and finally pure starch. Karnataka, AP, Bihar, MP. UP and Rajasthan are the main maize producing areas. It is also produced in Assam, Chhattisgarh, Haryana, Jharkhand, Tamil Nadu, Uttarakhand, Gujrat, HP, Jammu Kashmir, and Orissa. Punjab, West Bengal etc. Expiry rate of maize is fixed according to Nizamabad mandi. Apart from Nizamabad, Karimnagar in AP is also a delivery centre. In Maharashtra, Jalna and Jalgaon are the delivery centres while in Karnataka, Davengere is a delivery centre. Nimbaheda in Rajasthan, Ratlam in MP and Bahraich in UP are the delivery centres which are approved by the NCDEX. Maize is also produced in Assam, Chhattisgarh, Haryana, Jharkhand, Tamil Nadu, Uttarakhand, Gujrat, HP, Jammu & Kashmir, Orissa, Punjab and West Bengal. Starch is the key ingredient in Food Industry, Pharma Industry, Cattle Feed, Paper and Textile Industry. Starch market is driven mainly by the dynamics in Pharma, Food, Paper and Textile Industries. Apart from the above, starch and starch derivates are increasingly used in manufacture of ethanol to be blended with petroleum products. The wet milling industry in India is limited to certain pockets such as Gujrat, Maharashtra, Madhya Pradesh, Punjab, Karnataka and Chhattisgarh. There are about 17 wet milling units with a crushing capacity of about 3400 MT of maize/day. The average processing capacity of the units in India is 200 MT of maize/day. There are plants with as high crushing capacity as 400 MT/day. The starch is the main product of a maize processing unit, which is consumed in various other industries like food, pharmaceuticals, textiles, paper, hotels and restaurants, etc. The other products include Gluten, Germ, Fibre (husk) and Corn Steep Liquor. Gluten has great demand in animal feed industry because of its high protein content (70%). Germ is expressed to extract germ oil which is a low cholesterol containing edible oil. Fibre, mainly the husk, is used by animal feed manufacturers. It has demand in wet form itself for animal feed. Corn Steep Liquor is one of the substrates for culture media for manufacturing of antibiotics and other microbial production systems. In India, Mumbai, Delhi, Ahmedabad and Kolkata are the major markets for processed
maize products. Other important markets include Bhopal, Hyderabad, Chandigarh, Lucknow, Bangalore etc. Hence, Ahmedabad and Mumbai are the major trading centres for corn starch in India. As the supply demand gap is about 60% the starch can very easily be marketed in the Country and also Starch and Gluten have good Export Potential as well. India exports these products to Sri Lanka, South East Asian countries, Bangladesh and South Africa. The husk can be sold locally, the steep liquor which produce antibiotics and microbial products and corn oil can be marketed outside the state as there is good demand for it. Hence the maize processing unit if set up in the State, will flourish and catch up the market very easily. Glucose and Dextrose are the most important end uses of the product. The growth of liquid glucose in terms of its production has been at an annual compound growth of 6.3%. As regard Dextrose, the production of the same registered an annual compound growth rate of 8%. With such as appreciable growth rate of production of dextrose it is expected that the demand for starch would also substantially go up in the future. The paper industry also accounts for about 10% of the total consumption of starch. In this respect the growth of paper, and paperboard and also paper grade pulp in terms of installed capacity production and capacity utilization have been as under. Apart from these, food products industry is also growing appreciably over a period of time, which would also an increasing demand for starch.

**Few Indian Major Players are as under**
- Amaravati Agro Ltd.
- Bharat Starch Inds. Ltd.
- E I C L Ltd.
- Gayatri Bioorganics Ltd.
- Gujarat Ambuja Proteins Ltd.
- Gulshan Polyols Ltd.
- Hindustan Maize Products Ltd.
- Indian Maize & Chemicals Ltd.
- International Bestfoods Ltd.
- Jayant Vitamins Ltd.
- K G Gluco Biols Ltd.
- Kamala Sugar Mills Ltd.
- Laxmi Starch Ltd.
- Origin Agrostar Ltd.
- Rai Agro Inds. Ltd.
- Riddhi Siddhi Gluco Biols Ltd.
- Santosh Starch Ltd.
- Santosh Starch Products Ltd.
- Sayaji Industries Ltd.
- Starch & Chemicals Ltd.
- Sukhjit Starch & Chemicals Ltd.
- Tan India Ltd.
- Tirupati Starch & Chemicals Ltd.
- Unicorn Organics Ltd.
- Unique Sugars Ltd.
- Universal Starch-Chem Allied Ltd.
- Wockhardt Health Care Ltd.

**Tags**
Agro Based Small Scale Industries Projects, corn meal food products, corn starch production cost, Corn Starch Production Machinery, corn starch production plant, Corn wet milling process, Detailed Project
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