

**CHAPTER 2**

*Functions and Working of  
Yashwant Co-operative Glucose Factory*

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# **FUNCTIONS AND WORKING OF YASHWANT CO-OPERATIVE GLUCOSE FACTORY**

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### 2.1 Introduction:

This chapter is based on the information collected from the factory. The annual reports and some official information available in the factory are used to analyse the working of factory.

Yashwant Co-operative Glucose Factory Ltd. (Siddheshwarnagar) is a co-operative factory registered under the Maharashtra State Co-operative Societies Act 1960 bearing registration no. SAN/SLP/PLG (A) 1351. This chapter is based on the information collected from the factory. The annual reports and some official information available in the factory are used to analyse the working of factory.

Yashwant Co-operative Glucose Factory Ltd. (Siddheshwarnagar) was established on 25<sup>th</sup> June 1996. This factory is unique organization processing maize and manufacturing Liquid Glucose, various starches, Dextrin, Gluten, Germ and Cattle feed.

The area, in which the plant is located, is declared as industrial least developed zone in Maharashtra. Situated in rich and fertile basins of Krishna, Warna and Morna rivers, this area has very high potential for maize production consequently maize is traditional crop for the farmers in the region, good availability of natural water, supplementary irrigation facilities and favorable climate make this area highly suitable for maize production.

In order to exploit these conditions for the overall upliftment of the small and marginal land holding farmers the leader of Shirala Taluka Hon. Shri. Shivajirao Naik decided to set up this plant. His idea was soon reciprocated with overwhelming response from the farmers. More than

10,000 farmers have registered themselves as producer members along with the assistance from the Government of Maharashtra and National Co-operative Development Corporation (NCDC) New Delhi. This venture is with installed capacity of 150 MT per day. The maize processing was completed and commercial production was started in the year 2001.

Since 2001, this unit is running successfully and made its mark in the starch and glucose industry. Within few years of operation the brand 'Yashwant' is well established in the market due to its consistency in the quality of products.

The factory is located at Shirala in Sangli district. Which is 14 kms away from National Highway (Pune-Banglore Road N.H. - 4). The nearest railway station is Karad, which is 55 kms away from the factory site. The major nearest cities are Karad, Kolhapur, Islampur and Sangli.

Although blessed with the river like Krishna and Warna, Western part of Sangli District is still recognized as industry least developed area and declared as D<sup>+</sup> zone by Maharashtra Government. Marginal land holding and availability of employment was forcing the youth of this area to migrate to Mumbai and Pune. To Change this social scenario a visionary leadership was necessary so that social and financial development could have been initiated.

The destiny provided opportunity and the people from Shirala and Walwa tehsil elected Hon. Shri. Shivajirao Naik as their representative for the Legislative Assembly in 1995. Since then, this well educated, intellectual and elegant leadership has taken the region to higher attitude of development, within a few years along with various other ambiguous projects like 'Wakurde Lift irrigation Scheme'. M.I.D.C. Growth centre, he laid foundation stone for Yashwant Co-operative Glucose Factory Ltd. This is idea to set up a maize processing instead of a conventional sugar or textile plant was originated by his intelligent and highly educated son Shri.

Randhir Naik within eighteen months construction was completed and production was started in 2001. Yashwant Glucose; thus became India's 1<sup>st</sup> project in the Co-operative structure to manufacture Starch, Liquid Glucose, Gluten, Germ, Fiber and cattle feed under one roof with the direct as well as indirect employment and overwhelming response from the farmers for maize cultivation, the factory has emerged as one of the centers for the overall development of this region. Supply of cattle feed and wet husk to the milk-producing farmers.

Within 5 years of operation brand 'Yashwant' is well established in the market consistency in the quality of products. Not only in domestic markets but also in the foreign market. The factory introduces products with international quality norms. It could well be reflected from the list of customer, which includes the multinational like, Cadbury's, Godrej and Rawalgaon sugars.

Although working in the co-operative sector this industry is progressing and competing with other private sector starch industries with its sheer professional management. Recently, the efforts made by the management for its quality products, customer satisfaction and continuous efforts made by the management for its quality products, customer satisfaction and continuous improvement of the performance were awarded with the internationally accepted 'ISO 9000:2001' certification the factory has also provided direct employment to more than 500 youths and indirect employment to about 300 people of this region the efforts to provide agricultural services and employment have definatly been successfully in preventing the migration of the young generation towards urban areas from this industrially backward region.



**Scene of Yashwant Co-operative Glucose Factory.**

## **2.2 Factory Awards:**

The factory has been awarded the state and national level awards. They are as under.

- 1) In the year 2004 factory got award for "Janseva Gourav Puraskar" by Maharashtra Patrakar Sangh.
- 2) In the year 2004 factory got award for "Exceptional work done in the co-operative sector" in National level conference organized by "Sahakar Bharati in Mumbai by Vinay Tendulkar, Minister of Co-operative Goa.
- 3) In the year 2005 factory got award for "Sublime Agricultural Industrial and Livestock Exhibition" in Kolhapur (23 to 27 Jan 2005)
- 4) In the year 2005 factory got award for "West Regional Agricultural Science a Fair" (24 to 27 Feb 2005)
- 5) Factory got for its efficiency and management internationally accepted 'ISO 9000: 2001 certification.

- 6) In the year 2006 factory got award for “National Level Entrepreneurship – Excellent Award” in the Global Entrepreneurship meet organized jointly by ‘Jagatik Marathi Chamber of Commerce and Industries and India International Trade Centre in Mumbai by Dr. Raghunath Mashelkar senior scientist.

### **2.3 Highlights of Glucose Factory:**

1. Registration No SAN/SLP/PLG (A) 1351.
2. First 100% export oriented unit in India in co-operative sector.
3. Unique organization processing maize and manufacturing Liquid Glucose, various starches, Dextrin, Gluten, Germ and Cattle feed
4. Area of factory is 55 acres.
5. Demand from Maharashtra (Mumbai, Thane, Nasik), Karnataka, Kerala, Tamilnadu, Andhra Pradesh, Chhattisgarh, Patna, Rajasthan, Gujarat, Madhya Pradesh, Uttar Pradesh, Uttaranchal etc.
6. Audit class grade ‘A’
7. To produce and supply best quality 100% production using the state of the art technology carefully selected raw material and immaculate process control system.
8. Production capacity is 50,000 metric tones (MT) in 330 days. (150 MT per day)
9. 10,000 farmers are producer members along with 100 small cooperative societies.
10. Production Brand name – ‘Yashwant’

11. India's First project in the Co-operative sector.
12. Provided direct employment to more than 500 youths and indirect employment to about 300 people.
13. An honor of second factory in country, which got I.S.O. ranking for production and management.

#### **2.4 The Aims of Glucose Factory:**

Yashwant Co-operative Glucose Factory is unique organization processing maize and manufacturing Liquid Glucose, Starch, Gluten, Fine Fiber, Cattle feed and other sub-products.

The aim of this factory is to get reputation of an ideal and global status in cooperative project for achieving this aim the factory is working on five-formulas, they are as following.

- 1) Continuous Development.
- 2) Acceptance of Modern Technology.
- 3) Development of Human Skills.
- 4) Continuous Growth in area of maize cultivation and productivity.
- 5) To complete expectations of Peasants, Shareholders and consumers.

Factory is working continuously to increase social and economic status of farmers to increase rural employment and to protect environment.



## 2.5 Members of Glucose Factory –

The members of glucose factory have shown in following table.

**Table No-2.1**

### **Members of Glucose Factory**

(From 2002-03 to 2006-07)

<b>Sr. No.</b>	<b>Year</b>	<b>Total Member</b>	<b>Growth Rate in %</b>
1.	2002-03	7492	-
2.	2003-04	7473	-0.25 %
3.	2004-05	7709	3.06 %
4.	2005-06	8098	4.80 %
5.	2006-07	9481	14.59 %

Source- Annual Reports (From 2002-03 to 2006-07)

Above table shows the total members of glucose factory from 2002-03 to 2006-07. In the year 2002-03 there were 7492 members of glucose factory. In the next year number of members was increased by 19, because of growth rate was -0.25%. In the year 2004-05 the number of members was 7709, means in this year 236 members were increased and growth rate was 3.06%. Also in the year 2005-06 the number of members was 8098, in this year members of factory were increased by 389, and growth rate of members was 4.80%. In the year 2006-07 the number of members was 9481, in this year number of members were increased by 1383, and the growth rate of members was 14.59%. Means from 2003-04 to 2006-07 trend of members of factory was increasing because in Shirala Taluka farmers were understood that maize is profitable crop and it is giving stable income to farmers.

## 2.6 Employment of Glucose Factory –

The Yashwant Co-operative Glucose Factory has provided the employment especially for male and factory helping to create employment in lower class. Following table shows that total employment of glucose factory.

**Table No-2.2**  
**Employment of Glucose Factory**

(2006-07)

Sr.No.	No. of Workers	Clerical	Manager	Total
1	494 (82.34%)	98 (16.33%)	08 (1.33%)	600 (100%)

Source – Annual Report (2006-07)

Above table shows the total employment of glucose factory in the year 2006-07. There were 600 people to whom, factory has provided the employment.i.e. 494 are workers who were doing work in various sections, for example Starch section, Glucose section, Cattle feed section etc. Means 82.34% workers are doing work of to take production in glucose factory. Also there are 98 clericals who were doing official work in various sections, and its percentage is 16.33%.As well as there are 8 managers who were taking responsibility of management, and its percentage is 1.33%.

In this way glucose factory had provided employment to 600 people in Shirala Taluka and it is also continues helping to increase employment for lower classes.

### **2.7 Contribution in Agriculture Development:**

Every year factory implements the maize development and cultivation programme during Kharip and Rabbi Season. Under this programme seeds of advanced varieties are distributed to the farmers at subsidized rates, fertilizers and pesticides are timely made available along with the seeds at village level on credit. Farmers are encouraged by the promoters at village level and even at farms. Farmers are guided through experts by arranging seminars, lectures, exhibitions, slide shows, and Audio-Video cassettes and further by influencing individually through agricultural assistants appointed by the factory.



**An Ideal Maize Field Developed by a Factory at Shirala**

### **2.8 Facilities Provided by Factory**

The following facilities are provided by the factory.

Average maize purchase rate offered by factory in the year 2005-06 was Rs. 5760 per MT compared to Rs. 4250 per M.T. in year 2001-02. The average yield of maize per acre of the land has also improved from 12 quintal to 22 quintal. Thus by the way of subsidy, additional maize price, free thrashing facility etc. producer member have been benefited to the

tone of Rs. 2500 approx per M.T. of their produce. The highest maize supplier producer members are especially honored every year in the Annual General meeting and Awarded with Medals and cash prizes from their achievements in the maize cultivation. The area under maize cultivation has grow from just 300 acres to 6500 acres (11000 acres including Kharip and Rabbi Season in a year) in the area operation of factory. This indicates the encouraging atmosphere given by factory for the maize cultivating farmers.

## **2.9 Contribution in Development of Farmers:**

The contribution of factory in development of farmers as follows –

### **2.9.1 Maize Development Campaign:**

Factory has implemented maize development planning. Through this planning cultivation of maize is done by scientific method. It will cause the availability of water and fertilizers within short span of time. Due to this the production of maize is grown up. It helps to increasing the income of farmers.

### **2.9.2 Subsidy on seeds and Fertilizers:**

For the growth of cultivation of maize and for encouragement of farmers, factory is providing subsidy on the purchasing cross bred seeds. It is also planed to provide seeds and fertilizers on the credit and gives 60% subsidy on seed and fertilizers is offered to these member farmers by factory.

### **2.9.3 Water –Supply Plan:**

Factory has started two schemes of water supply for the development of agriculture in Shirala Taluka. First is Shri. Vakeshwar co-operative water supply Society Ltd. Vakurde Khurd and second is Shri. Jyotirling Co-operative water supply Society Ltd. Nigadi. These plans help to farmers to produce maize crop.

#### **2.9.4 Generation of Bio-Gas:**

The factory is processing the polluted water, which comes outside from factory. By using this process the polluted water is purified and this pure water is again provided to the agriculture in the area of factory.

#### **2.9.5 Facility of Free Thrushing Machine:**

Factory also provides the facility of maize thrushing to the farmers. This facility is also made available at free of cost at factory site. This facility saves the expenditure of farmers.

#### **2.9.6 Workers Welfare:**

For the welfare of workers, the factory has established credit society. This credit society fulfills the economic needs of the workers and it also helps to grow the status of living. This society provides loans to worker during their economic problem. This credit society is the by-product of parent co-operative.

#### **2.9.7 Supply of Hybrid Seeds:**

Factory provides Hybrid seeds to farmer to have maize crop in short span of time. The duration of some crops is of 3 months and the duration of some crops is of 4 months.

#### **2.9.8 Supply of Edible Oil:**

Factory makes edible oil from the germs of maize. In Diwali Festival, 2 kg edible oil is given to every member farmers of the factory and 1 kg edible oil is given to non-member of the factory free of cost.

#### **2.9.9 Guidance to Farmers:**

For the cultivation and development of maize crop, farmers are guided through experts by arranging seminars, lectures, exhibitions, slide shows, and audio-video cassette and further by influencing individually through agricultural assistants appointed by factory.

## **2.10 Process Involved in Glucose Factory:**

The factory is unique organization processing maize. Factory is famous for its various products, which are made from maize. The products like various Starches, Liquid Glucose, Dextrin, Gluten, Germ cattle feed are of this factory, which are made by processing on maize. Before this processing, maize is brought by farmers, who cultivate maize crop. When factory gets shortage of maize, factory imports maize from other states in India. After storing maize in factory, the various process like maize cleaning, stipping wat, grinding, cyclone, fiber wash, merco machine, starch hydrocyclon, packing are done on maize and various starches are made and later these various starches are sent to various companies for making various products.

Now we can study the above mentioned process in detail, they are as following –

### **2.10.1 Maize Cleaning:**

This is beginning process, which is done on maize. In this process maize is cleaned and dust is aparted from maize. Out of this the qualitative maize is separated for next process.

### **2. 10.2 Stipping Wat:**

Stipping wats are the big shaped tanks which are used for deflation of maize by using the elements or components sulpher, water and steam. This process gets 72 hours. By using this process a germ of maize is separated. In this process maize is also boiled. The stipping wats are eight in number. (A wat has capacity of 71 MT of maize).

### **2. 10.3 Grinding:**

In this process maize is grinded. After grinding maize, the germs of maize is separated and these germs are send for next process.

### **2.10.4 Cyclon :**

In this process germ oil is made by the germs of maize.

### **2.10.5 Fiber wash:**

In this process Fibers and Husks are separated. After separation of Fiber and Husk remaining slurry sends to the merko machine.

### **2.10.6 Merco Machine:**

In this process starch and Gluten are separated from slurry. Later starch is sent to hydrocyclon.

### **2.10.7 Starch Hydrocyclon :**

In this process starch slurry is made from starch. In this slurry 50% starch goes to sentricuze machine and 50% starch is sent to make Liquid Glucose.

Starch powder is made from the 50% starch slurry, which is sent to sentricuze machine. After packing of starch powder, these starches are sent to various companies for making various products.

Following products are made by starch –

#### **1) Starch :**

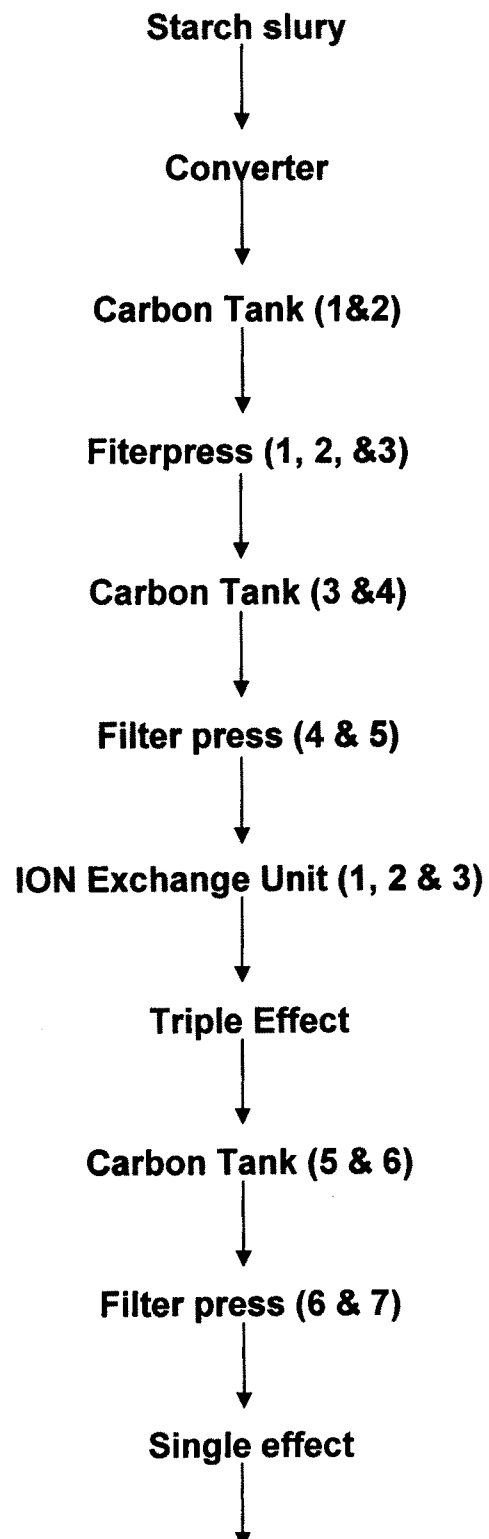
- i. Instant starch
- ii. Ice-cream
- iii. Detergent cake
- iv. Custard powder
- v. Pigments
- vi. Tablets (Medicine)
- vii. Talcum powder
- viii. Colgate
- ix. Shoe polish
- x. Cloth/fabric paper

Thus, we have seen the process which is used for making starch.

In this way by doing process on maize, the 50% starch slurry is converted into starch powder and 50% starch slurry is sent for liquid

glucose. Above are the various steps of making starch. There are various steps used for making liquid glucose, these are as following.

### Steps for making Liquid Glucose





**Batch Evaporator**



**Liquid Glucose**

Above steps are used for making Liquid Glucose. The preparation of Glucose takes 22 to 23 hours; this glucose is packed in barrel. The capacity of one barrel is 300 kg. Later the packed glucose is sent to other state and to various companies for making various products.

Following various products are made from glucose.

## **2) Glucose:**

- I. Biscuits
- II. Glucose Powder
- III. Chikki
- IV. Confectionaries Sweets
- V. Newutrients
- VI. Saline Water
- VII. O.R.S. Powder
- VIII. Anti-Acidic medicine
- IX. Edible oil
- X. Syrup
- XI. Liquid medicines
- XII. Chocklets
- XIII. Toffee (Chocklets)

Thus, we have seen the process of the production of starch and Glucose. These two things are used for making various productions. The production of Dextrin is also made by processing on maize. Some productions are made from this dextrin. These productions are as following.

### **3) Dextrin:**

- I. Gum
- II. Crackers
- III. Battery cell
- IV. Distemper
- V. Texo tape
- VI. Paper box

### **4) Cattle Feed:**

The first rate cattle feed like Yashwant Yashodhan Pellet, Yashwant Bio-milk Pellet, Yashwant super pellet, Yashwant special pellet, Yashwant Poshak, Mash, Yashwant supreme mash are produced in the cattle feed section of factory. The wet cattle feed, which is nourishing and cheap, fills the need of green food and it is very popular in farmers and that's why during recent days the demand of wet cattle feed has been growing in the work field of factory.

Along with Maize gluten, cattle feed, Maize fine fiber, Maize husk, Maize germ cakes are also used as cattle feed.



**Various Products of Maize**



**Quality Maize**

**Table No - 2.3**  
**Waste Products and its use.**

<b>Sr. No.</b>	<b>Component</b>	<b>General Use</b>
1	Maize Germ	a) Maize Crude Oil b) Maize Germ Oil
2	Maize Crude Oil	Edible Oil
3	Maize Germ Cake	Cattle feed
4	Maize Husk	Cattle feed
5	Fine fiber	Cattle feed
6	Maize Gluten	Cattle feed
7	Maize Starch Powder	Textile Industries
8	Yellow Dextrin	a) Texo Tape b) Crackers c) Paper Box
9	White Dextrin	a) Battery cell b) Shoes Polish c) Distemper
10	Liquid Glucose	Pharma Industry
11	Yashwant Yoshodhan Pellet	Cattle feed
12	Yashwant Special Pellet	Cattle feed
13	Yashwant Supreme Mash	Animal feed

Source: Annual Report of Glucose Factory

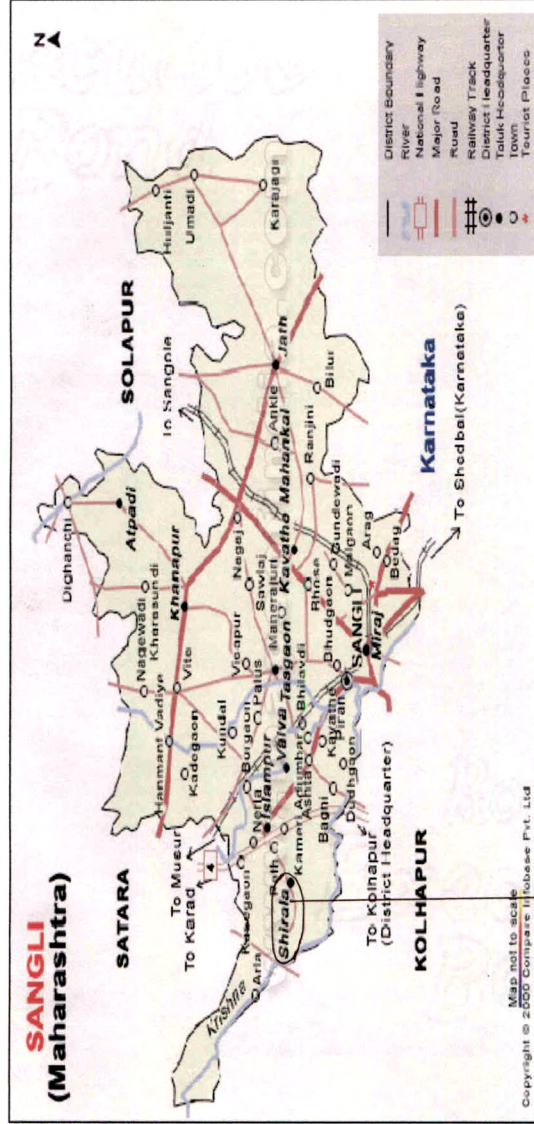
Map No. 2.1

District Map of Maharashtra



Map No. 2.2

Map of Sangli District



Yashwant Co-operative Glucose Factory