

TECHNICAL PERFORMANCE



TECHNICAL REVIEW OF SUGAR FACTORIES IN MAHARASHTRA SEASON 2008-09 (OCTOBER TO SEPTEMBER)

India's opening stock of sugar was 11.13 mln. tonnes at the start of the 2008-09 season. During this season, the country produced 14.7 mln. tonnes of sugar as compared to the previous season's production of 26.36 mln. tonnes. There was a decline of 11.66 mln. tonnes (44%). Maharashtra was one of the major sugar producers in the country. There was a steep decline of 49.5% (4.49 mln. tonnes) in sugar production as compared to the previous season (9.07 mln. tonnes). The percent share of the state in the country's sugar production remained at 31.16% (Table 1). Out of total 27.83 mln. tonnes of sugar available during 2008-09, 22.5 mln. tonnes was consumed domestically. The Central Government allowed imports of raw and white sugar at zero import duty to control domestic sugar prices. The forthcoming season would start with an opening stock of 5.33 mln. tonnes and sugar output is projected to be around 16 mln. tonnes. The state is likely to produce around 6 mln. tonnes of sugar.

There were 195 sugar factories in Maharashtra with total daily sugarcane crushing capacity of 0.47 mln. tonnes. Out of these, 165 were in cooperative sector and remaining 30 in private sector. Cane crushing capacity of these sugar factories varied from 500 TCD to 7500 TCD. During 2008-09 season, 145 sugar factories including two new private completed their crushing season. Remaining 50 did not start their crushing season mainly due to cane shortage and financial constraints.

The state produced 4.58 mln. tonnes of sugar by crushing 40.01 mln. tonnes of cane with an average sugar recovery of 11.47%. There was sharp decline of 47.51% (36.22 mln. tonnes) in cane crushing as compared to the previous season, which resulted in decline of 4.49 mln. tonnes of sugar production. The crushing season lasted for average

107 days, which was less by 74 days as compared to the previous crushing season.

The zone-wise comparative performance regarding cane crushed, sugar produced, sugar recovery % cane and technical efficiency parameters for 2007-08 and 2008-09 is presented in Table 2.

Sugar Recovery% Cane

The state's average sugar recovery was 11.47% which declined by 0.47 units as compared to the previous season's average of 11.94%. The drop in sugar production was mainly due to drop in sugar content of cane (pol% cane) and less sugarcane crushing. Vishwasrao Naik SSK from south zone recorded the highest sugar recovery of 13.10% in the state. Total 66 (46%) sugar factories achieved sugar recovery above 11%. Only nine sugar factories in the state reported sugar recovery of 12.5% and above. In this regard, S.M. Kagal Taluka SSK (13.09%), H.K. Ahir SSK (12.97%), Kumbhi Kasari SSK (12.96%), Dudhganga Vedganga SSK (12.94%), Chhatrapati Shahu SSK (12.83%), Datta Shetkari SSK, Shirol (12.73%), Bhogavati SSK and Gurudatta Sugars (each 12.50%) were the factories at the forefront.

Crushing Capacity Utilization

The capacity utilization is the most important factor in reducing the production cost. Optimum crushing capacity utilization results in reducing the use of oil, lubricants and process chemicals like lime, sulphur, phosphoric acid, etc. Further higher capacity utilization can be achieved with uniform and continuous operation, which ultimately results in reducing sugar losses, consumption of bagasse and steam.

53 sugar factories reported crushing capacity utilization of 100% and more as compared to 63

Table 1 : Cane crushed, sugar production and sugar recovery% cane in Maharashtra.

Season	Cane Crushed (mln. tonnes)	Sugar Produced (mln. tonnes)	Sugar Recovery (%) Cane	Share of State in Country's Sugar Production (%)
2004-05	19.46	2.22	11.42	17.47
2005-06	44.57	5.20	11.68	26.98
2006-07	79.88	9.10	11.39	32.16
2007-08	76.23	9.07	11.94	34.41
2008-09	40.01	4.58	11.47	31.16



Table 2 : Zone-wise technical performance of sugar factories in Maharashtra

Characteristics	Season 2007-08				Season 2008-09			
	South	Central	N-East	State	South	Central	N-East	State
No. of installed sugar factories	46	59	88	193	46	60	89	195
Installed capacity ('000 TCD)	144.00	156.20	170.60	470.80	144.00	158.70	172.10	474.70
No. of sugar factories not in operation	0	1	18	19	5	6	39	50
No. of sugar factories in operation	46	58	70	174	41	54	50	145
Gross days	157	208	174	181	111	118	87	107
Sugarcane crushed (mln. tonnes)	22.260	34.021	19.946	76.227	15.274	18.974	5.765	40.013
Sugar production (mln. tonnes)	2.807	4.031	2.236	9.074	1.859	2.114	0.605	4.578
Capacity utilization %	94.18	99.72	79.77	91.93	98.69	102.62	77.37	98.59
Recovery % cane	12.65	11.86	11.28	11.94	12.18	11.14	10.58	11.47
Lost hrs. % to available hrs.	13.27	10.10	23.44	15.90	12.18	10.64	28.03	15.13
Pol % cane	14.56	13.78	13.36	13.90	14.04	13.04	12.54	13.36
Fibre % cane	13.65	13.85	14.06	13.88	13.42	13.65	13.67	13.59
Sugar lost % cane	1.938	1.950	2.112	1.989	1.884	1.924	1.977	1.916
RME (Mittal)	95.37	95.38	94.72	95.11	95.25	94.97	94.55	94.93
Added water % fibre	184.79	182.30	167.45	177.09	182.30	182.06	173.25	179.64
RBHR (Gundu Rao)	90.58	90.84	90.26	90.54	90.77	90.76	90.54	90.70
ROE (Mittal-Gundu Rao)	86.39	86.64	85.49	86.12	86.46	86.20	85.61	86.11
Molasses % cane	3.80	4.01	4.39	4.05	3.85	3.95	4.29	3.96

factories in the previous season. Other 53 sugar factories reported crushing capacity utilization below 80% as compared to 58 in the previous season. The state's average crushing capacity utilization was 98.59% which was 6.66 units higher than that of the previous season (91.93%).

Lost Hours% to Available Hours

Continuous crushing of cane throughout the crushing period is an important factor for any sugar factory to achieve optimum technical performance. Stoppages occur due to the following reasons.

- Cane shortage
- Mechanical and electrical defects.
- General cleaning
- Miscellaneous reasons such as untimely rain, strikes, etc.

The average lost hours % to available hours during 2008-09 was 15.13% as compared to 15.90% in the previous season with a decline of 0.77 units. During the period under report, 68 factories (48.57%) maintained down time within the prescribed maximum limit of 10% (laid by Govt. of India). Lost hours% to available hours decreased in south zone as compared to that of previous season. In this regard, sugar factories like Rena SSK (1.22%), Manjara SSK

(2.16%), Bhimashankar SSK (2.21%), Vighnagar SSK (2.28%), Kumbhi Kasari SSK (2.32%), Datta Shetkari SSK, Shirol (2.41%), S.S. Vasantrao Kale SSK (2.48%), Ghodganga SSK (2.49%) and Nira Bhima SSK (2.55%) kept their lost hours % to available hours at the minimum level.

Pol% Cane

The average pol% cane of the state was decreased by 0.54 units as compared to the previous season. Out of 138 sugar factories, which were in operation during both seasons, 129 sugar factories reported decline in pol% cane. The highest drop in average pol% cane (0.82 units) was reported by 42 sugar factories in north-east zone. Sixteen sugar factories achieved pol% cane of 14 and above. Only nine sugar factories showed improvement in pol% cane as compared to the previous season. S.M. Kagal Taluka SSK (15.05%), Vishwasrao Naik SSK (14.93%), Dudhganga Vedganga SSK (14.91%), Kumbhi Kasari SSK (14.72%), H.K. Ahir SSK (14.63%) and Chhatrapati Shahu SSK (14.60%) achieved pol% cane 14.50% and above.

Reduced Mill Extraction (RME-Mittal)

Extraction of maximum sugar from cane into mixed juice with minimum loss in bagasse is the aim

of a mill station. The parameters such as imbibition water (added water % fibre), pol % bagasse and Reduced Mill Extraction (RME) indicate the efficiency of mill station of any factory. Use of hot imbibition water (exceeding 200%) is useful in improving the mill extraction. The average level of imbibition water used in the state was 179.64% as compared to 177.09% in the previous season. Only 20 sugar factories utilized imbibition water more than 200%.

The average RME of the state was 94.93% which was lower by 0.18 units as compared to the previous season. Eight sugar factories achieved 96% and above RME as compared to that of 30 factories during previous season. The eight forerunners were Sharad SSK (96.40%), Y.M. Krishna SSK (96.39%), Nira Bhima SSK (96.30%), H.K. Ahir SSK (96.25%), Jay Mahesh (96.20%), Datta Shetkari SSK, Shirol (96.18%), Kumbhi Kasari SSK (96.12%) and T.K. Warna SSK (96.11%).

Reduced Boiling House Recovery (RBHR-Gundu Rao)

The boiling house performance of a sugar mill is judged from boiling house recovery and Reduced Boiling House Recovery (RBHR). It is useful for comparing the performance of the boiling house of different sugar factories having different mixed juice purity.

The average RBHR was 90.70% which was higher by 0.16 units as compared to that in the previous season. 105 sugar factories achieved the standard norm of RBHR (minimum 90%) as compared to 126 factories in the previous season. There were 12 sugar factories which achieved RBHR of 92% and above. The front-runners in this respect were Dr. D.Y. Patil SSK (92.69%), H.J. Patil SSK (92.65%), Marathwada SSK (92.56%), Bhimashankar SSK (92.50%), Dr. B. Ambedkar SSK (92.31%), Nira Bhima SSK (92.20%) and Chhatrapati Shahu SSK (92.17%).

Total Sugar Losses

Sugar loss in any sugar factory in a crushing season is an important parameter for assessing the technical performance. The total sugar losses need to be kept below 2%. Sugar loss is dependent on fibre % cane, milling, boiling house performance, efficiency of plant machinery and skilled manpower.

The sugar industry achieved average sugar loss % cane of 1.916. From the available information of 140 sugar factories, 80 achieved the total sugar losses

below 2% (as against 75 during the previous season), whereas, 34 achieved it in the range of 2% to 2.2% and remaining 26 recorded it above 2.2%. Sharad SSK achieved the lowest total sugar losses (1.641%) in the state. Dr. B. Ambedkar SSK and Nira Bhima SSK (each 1.660%), H.K. Ahir SSK (1.686%), Vighnagar SSK (1.700%), Bhimashankar SSK (1.713%), Ghodganga SSK (1.720%), Pandurang SSK (1.738%), Shankar SSK, Sadashivnagar and Rena SSK (each 1.750%) also performed well.

