



Success Story of Restoring the Lost Glory of Alangadan Jaggery in Kerala for Entrepreneurship Development, Employment Generation and Income Enhancement

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India is a land of high species richness as well as agrobiodiversity with only 2.4% of the land biomass and supports 17% of the global human population. Agriculture plays an important role in the economy of India. About sixty per cent of the Indian population is still dependent on agriculture and its allied activities. Sugarcane is the main cash crop of India after cotton which is cultivated in both tropical and sub-tropical regions of the nation. Sugarcane is the major raw material, required for the production of sugar, *gur* and *khandsari*. Now, bio-ethanol and bio-energy are also produced from sugarcane, It is also an efficient substitute for petroleum products and other chemical products. Being a long duration crop, sugarcane requires 10 to 15 months and even 18 months to mature depending upon the geographical conditions.



Sugarcane is being traditionally cultivated in India since time immemorial. At that time, whole quantity of sugarcane produced in the country was consumed as chewing cane. This practice of consumption of sugarcane continued till about two thousand years ago, when the technology of concentrating the sugarcane juice was developed for various sweetening agents like sugar, jaggery and *khandsari* etc. Sugarcane also produces bagasse, molasses, press mud, spent wash etc as by-products after its processing. Now, the crop is also being considered as an energy crop for production of bio-ethanol and bio-energy. At present, sugarcane is commercially cultivated on 5.88 mha of area with a productivity of 84.0 tonnes/ha in India.

Sugarcane, second important commercial crop of India after cotton, occupies a prized position in the agrarian economy of India, where it is grown in about 2.57% of gross cropped area in the country by over 5 million farmers. Sugarcane is widely cultivated across the country, excluding only the cold hilly areas..Sugar industry is the largest agro-based industry of India after cotton, supporting the livelihood of millions of population. Sugarcane cultivation has a glorious history in Kerala. till 1920's, sugarcane cultivation was limited to specific areas, bordering the district of Coimbatore where Tamil culture had a significant influence and later it spread to other parts of the state mainly for the production of jaggery. The scenario of sugarcane cultivation was changed drastically after establishment of Travancore Sugars in 1937, which led to mass cultivation of sugarcane for sugar production. Subsequently, two other sugar factories (Mannam sugar mill in 1964 and Chittoor Sugar in 1965) were established in the cooperative sector. Sugarcane emerged as the major commercial crop of Kerala, contributing significantly to the enhanced agricultural income of

sugarcane farmers. During the period from 1960-1980, the area under sugarcane cultivation and sugar production increased tremendously, the sugar mills generated direct employment for thousands of people, and the jaggery making units started flourishing providing employment opportunities and hence, this period was considered as the Golden age of sugar industry in Kerala. The employment opportunities increased the per capita income and standard of living of the people. Kerala was self-sufficient in sugar to a great extent during this period. But the success of the sugar industry could not sustain in the long run and all the three sugar mills were closed due to huge financial losses. At present, sugarcane is being cultivated mainly for jaggery making. However, a small quantity of sugarcane produced is being used for the juice consumption, chewing cane during festival seasons, and religious offerings. The number of Jaggery production units have been declined to 41 during the year 2010 against 591 during 1980. But the consumption of sugar and jaggery in Kerala has been enhancing each year, far ahead of the other Indian states. The per capita consumption of sugar in Kerala was 47.1kg per annum and that of jaggery was 23.1kg per annum.

Kerala has the deep-rooted tradition of cultivating sugarcane, particularly in the Periyar river basin for the production of a cherished sweetener, known as jaggery. The data embodied in Table 1 clearly revealed that area under sugarcane in Kerala which was 7,000 hectares during 1954-55, increased to 10,000 hectares during 1963-64. But it has declined gradually with passage of time to only 1,000 hectare during 2020-21. Similarly, production of sugarcane in Kerala which was 3,66,000 tonnes during 1954-55, increased to 579,000 tonnes during 1999-2000. But it has declined gradually with passage of time to only 4,000 tonnes during 2020-21. Similarly, the average productivity of sugarcane in the State which was 52.29 tonnes/ha during 1954-55 declined to 42.33 tonnes/ha during 1960-61. The productivity of sugarcane in the state was enhanced due to introduction of newly released high yielding varieties. The maximum productivity of sugarcane of 138 tonnes/ha was recorded during 2008-09 and 2015-16.

Table 1: Area, production and productivity of sugarcane in Kerala

Year	Area (000 ha)	Production (000 tonnes)	Productivity (tonnes/ha)
1954-55	7	366	52.29
1960-61	9	381	42.33
1963-64	10	441	44.10
1966-67	9	549	61.00
1970-71	8	376	47.00
1980-81	8	462	57.75
1990-91	8	443	55.38
1999-00	6	579	99.80
2000-01	3	276	81.10
2008-09	2	276	138.00
2010-11	3	271	90.30
2015-16	1	138	138.0
2020-21	1	74	116.31

The data on area under sugar crops in various districts of Kerala depicted in Table 2 clearly revealed that Idukki is the largest sugarcane producing district of Kerala where it is being cultivated in 835 hectares area. Sugarcane is also cultivated in Alappuzha, Kottayam, Palakkad, Pathanamthitta, Ernakulam and Kannur districts of the State in limited area.

Table 1: District-wise area under sugarcane in Kerala during the year 2021-22 (Hectares)

District	Area under sugarcane (hectares)
Trivendrum	0.00
Kollam	0.00
Pathanamthitta	11.04
Alappuzha	33.00
Kottayam	18.21
Idukki	835.00
Ernakulam	4.00
Thrissur	0.00
Palakkad	13.77
Malappuram	0.00
Kozhikode	0.00
Wayanad	0.00
Kannur	0.39
Kasaragode	0.00
Kerala State	915.41

Data on district-wise cane gur production embodied in Table 3 revealed that Idukki is the largest cane gur producing district of Kerala where 9848.8 tonnes of cane gur was produced during the year 2021-22. The data on productivity of cane gur depicted in Table 4 showed that the productivity of cane gur was the highest in Idukki district, followed by Alappuzha, Kottayam, Pathanamthitta and Palakkad.

Table 3: District-wise production of cane gur in Kerala during the year 2021-22 (tonnes)

District	Production of Cane Gur (tonnes)
Trivendrum	0
Kollam	0
Pathanamthitta	94.524
Alappuzha	260.700
Kottayam	120.419
Idukki	9848.825
Ernakulam	10.000
Thrissur	0
Palakkad	93.368
Malappuram	0
Kozhikode	0
Wayanad	0
Kannur	3.895
Kasaragode	0
Kerala State	10431.731

Table 4: District-wise productivity of cane gur in Kerala during the year 2021-22 (kg/ha)

District	Productivity of Cane Gur (kg/ha)
Trivendrum	0
Kollam	0
Pathanamthitta	8562
Alappuzha	7900
Kottayam	6613
Idukki	11795
Ernakulam	2500
Thrissur	0
Palakkad	6781
Malappuram	0
Kozhikode	0
Wayanad	0
Kannur	9987
Kasaragode	0
Kerala State	11396

But sugarcane farming in this southern State of the country is facing several challenges during the recent decades, including low profitability, increasing costs of the labour and competition from the cheaper alternatives, resulting in the sharp deteriorating quality and quantity of jaggery, especially the most popular Alangadan Sharkara.

Jaggery is a traditional Indian sweetener, prepared from sugarcane and palm. A low grade non-centrifugal sweetener jaggery is a traditional Indian sweetener, being produced from the time immemorial. It is an unrefined natural sugar that is produced from sugarcane, palm and sugar beet without adding any chemicals. Before introduction of modern sugar mills in early twentieth century, almost all the quantity of sugarcane produced was used for jaggery making which was one of the important cottage industries of rural India. India is the largest jaggery producing country of the world, contributing more than 70% to the global jaggery basket. Jaggery production is an age old practice in India, which is still prevalent in the unorganized sector. Popularly known as the “medicinal sugar” and is nutritionally comparable with honey, jaggery is being consumed as a sweetener in Ayurvedic Medicine for more than thirty centuries. Jaggery is being considered highly beneficial for treating throat and lung infections in Indian Ayurvedic medicine. Jaggery is an unrefined natural sugar that is produced without adding any chemicals. Jaggery is popularly known as the “medicinal sugar” and is nutritionally comparable with honey. While refined sugar mainly consists of glucose and fructose, jaggery contains glucose and sucrose. But jaggery also has minerals and vitamins which lack refined sugar. The mineral content of jaggery includes calcium, phosphorus, magnesium, potassium and iron and traces of zinc and copper. Jaggery also contains the vitamins including folic acid and B-complex vitamins. In spite of being a rich source of energy, it plays an important role in preventing disorders of bile and rheumatic afflictions; helping in relieving fatigue, relaxing muscles, nerves and blood vessels; maintaining blood pressure and reducing water retention; increasing hemoglobin level and prevents anemia.

Being the largest producer of jaggery, India has been recognized as one of the leading traders and exporters of Jaggery to the world. India exported 761,640.19 MT of Jaggery and Confectionery products to the world for the worth of Rs. 4,330.07 Crores/ 537.01 USD Millions during the year 2022-23. During the financial year 2022-23, Indian jaggery was

primarily exported to Sudan, Indonesia, Tanzania, United Arab Emirates and Kenya as major export destinations. Jaggery prepared from sugarcane juice fetches more price than white sugar. Awareness about food value of jaggery over white sugar has created a huge market demand for this traditional sweetener. But in spite of jaggery being more nutritious than white sugar, its consumption has declined in the country. The per capita consumption of jaggery in India which was 13.87 kg during 1960 has declined to 6.30 kg now. Indian market is dominated by solid jaggery, holding lion's share of 80%, while 20% is hold by liquid and granular jaggery. It is worth to mention here that liquid and granular jaggery are more convenient from the point of view of ease of utilization and handling. Thus, jaggery in all the three forms viz., solid, liquid and granular can be produced in cottage scale rural industry which has immense potential to enhance income and generate employment in the rural areas of the country.

Jaggery is known as Sharkara in Malayalam. In Kerala, it not only holds cultural importance but is also recognized for its mineral-rich and antioxidant properties, offering numerous health benefits. Jaggery plays a pivotal role in the cuisine of Kerala and used in different dishes and religious ceremonies, symbolizing auspiciousness and prosperity. With the major objective of rejuvenating sugarcane cultivation in the Periyar river basin and restoring the prominence of Alangadan Jaggery, the Krishi Vigyan Kendra (KVK), Ernakulam which is working under the administrative control of the ICAR-Central Marine Fisheries Research Institute (CMFRI), Kochi has established a jaggery production unit in Alangad. The primary goal of this demonstration is to promote chemical-free, high quality jaggery production and established a branded marketing channel for Alangadan Sharkara, potentially earning a Geographical Indication (GI) tag in the near future. Furthermore, this novel initiative will ultimately be instrumental in creating opportunities for value addition and income generation by exploring other sugarcane derived products like bottled juice, liquid jaggery and vacuum-evaporated jaggery to cater to evolving consumer preferences of sweeteners. KVK, Alangad was continuously demonstrating the improved sugarcane production technology in the area under their jurisdiction. KVK, Ernakulam has planted Co 86032 - a high yielding and disease resistant variety of sugarcane, which has been developed by ICAR-Sugarcane Breeding Institute, Coimbatore (Tamil Nadu), exclusively for jaggery production. The plant for the jaggery unit was purchased with the funding from the ICAR-Agricultural Technology Application Research Institute (ATARI), Bengaluru and has been installed in the building sponsored by the Alangad Co-operative Bank. The Alangad Gram Panchayath is acting as a major collaborator for implementing the whole project. The ICAR-Indian Institute of Sugarcane Research, Lucknow is supporting the project by providing technological expertise for the jaggery production unit.



Method of preparation of Jaggery

The efforts of Krishi Vigyan Kendra, Ernakulam is a commendable example of how scientific interventions and innovations can be instrumental in preserving and promoting traditional indigenous knowledge and practices. Moreover, this initiative has proved its importance as a vital contribution to the sustainable development of the State as well as the country and welfare of the farming community, showcasing the potential impact of such endeavours on the landscape of the Indian agriculture. There is no doubt that such an initiative will lead to entrepreneurship development, enhancement of income and generation of employment for the rural youths which will ultimately be instrumental for improving the standard of living of thousands of sugarcane farmers. This is the need of the hour to replicate such models in other areas of the country which can transform the lives of millions of the farmers, cultivating sugarcane.