https://doi.org/10.29321/MAJ.10.A03890

A Survey on Sago in Salem District *

by

P. SAVITHRI[1]

Synopsis: A survey conducted by the author on Sago in Salem district of Madras State during a study tour is reported in this paper. The survey covered aspects on the history of development of the sago industry, techniques of manufacture, cost of production and marketing problems. Nearly 84% of the consumers' rupee is shared by the producer according to the survey.

Tapioca *(Manihot utilissima)* is the main source of sago production in Salem district. The sago manufacturing industry in Salem district has gained a lot of importance in recent years and Salem is noted for its export of sago to North India.

Tapioca cultivation in India on a large scale was of recent origin. World war II had been a blessing in disguise in the field of tapioca cultivation as the demand for starch by the textile mills had to be met. The bulk of their starch requirements for sizing used to be met by imports from the Netherlands, Germany, Belgium and U. S. A. which was cut off during the war time. Though the Indonesian tapioca starch filled up the vacuum for sometime that also ceased when Japan entered the war.

Tapioca began to be cultivated on a large scale in Travancore-Cochin in order to meet the food deficit during the war. As the position improved later on, a large quantity was diverted for manufacture of sago, starch etc. Cultivation of tapioca was extended to the Madras State also especially in Salem district when sago manufacture started at Salem though 80 per cent of the area is still concentrated in the Kerala State.

In the Salem district tapioca is grown under irrigated condition and an acre of crop will yield as much as 20,000 lb. under normal condition. Several products such as starch, tapioca flour, semolina goplek and sago are manufactured from tapioca; and tapioca wastes and refuse are used as cattlefeed, fuel and sometimes as manure.

Sago is in the form of small, spherical globules and consists of starch grains connected together by the dextrin produced in their manufacture. Different samples of sago analysed at the Guindy Institute, Madras has shown that sago consists of 11·6% moisture, 3·0% protein, 0·1% fat, 0·4% mineral matter and 84·9% carbohydrate. Sago is used as an energy-giving food for invalids and for making recipes of 25 different varieties of preparations according to Indian style. The present enquiries were confined to the study of the manufacture of sago and its marketing in the Salem District.

---

1. Assistant in Chemistry, A. C. & R. I., Coimbatore. (The Article is based on an enquiry made in a study tour as a final B. Sc. (Ag.) Student)

* Received on 28—12—1963.

Sago in Salem: When import of starch stopped from foreign countries due to war, manufacture of starch and sago started in 1943 in the Madras and Kerala States. In 1944, the Sago Association was established at Salem and was registered under the Companies Act of 1886. The Association through its elected executive body has turned out useful work in popularising sago and improving its quality. The manufacture of sago from a negligible quantity in the beginning has risen to nearly 90,000 tons per year at present and Salem serves as an important exporting centre of sago. The number of factories engaged in manufacturing of sago is indicated in the following table :—

Number of sago factories in Salem District

Sl. No.	Year.	No. of Factories.
1.	1951	50
2.	1956	70
3.	1961	150
4.	1962	225

Source: Sago Association, Salem. Thus it is seen that the number of factories have increased from 50 in 1951 to 225 in 1962 in the period of a decade.

Manufacture of sago: Sago is manufactured by two methods. (1) Country method (2) improved method.

In Salem, most of the factories adopt the country method. Under this method, mature tapioca tubers are cleaned by employing women labour and their skin and rind are peeled off with stainless knives. The peeled tubers are soaked for 8 hours, then removed and washed. The cleaned tubers are carried in baskets to mechanically operated grinders and water added gradually to make it into a pulpy mass. The pulp is then strained through an extremely fine cloth of special make to remove the fibrous matter and other impurities. The sieved mass of milk of tapioca is flooded into a cement cistern of 8' x 20' x 4' where it is allowed to settle. A maximum quantity of starch settles in the tank as the starch is heavier than water. The top liquid is again transferred to an adjacent tank of similar size where the remaining starch settles down. The top layer of the thick starchy paste left behind which usually has a yellowish tinge is first removed and transferred to a smaller tank and the white starchy paste underneath removed to a cement plastered drying floor and spread in it for drying. The yellowish tinged starch refered to above is further washed and rewashed until a milk white starch is obtained and dried in the manner, detailed above.

When the starch is still moist containing 50% moisture, it is collected and converted into sago. The blocks of fine starch are broken and sieved by women in order to separate them into small globules. The process of sizing starch into globules varies widely from factory to factory. In small factories which do not have mechanically operated sizers, the sizing is done by putting small quantities

into cloth suspended by ropes which is rapidly moved to and fro by two persons for about 15 to 20 minutes until the partially moist starch forms itself into globules. The globules are then fried with coconut oil in an aluminium pan of 3' x 4½'. They are then removed and dried in the sun for half a day. The dried sago is polished in a polishing machine so as to get a uniform sized sago particles. The processed sago is bagged in double gunny bags 90 kilograms each.

In the improved method, the pulp is sent through two sieves and the residue left is made into starch slurry. Then the filtered liquid is flooded in large open cement tubs for settling. Settling is allowed for about 12 hours. After 12 hours the top liquid is siphoned out and fresh water is added to the tubs for cleaning. The cleaned material is made granular by passing it through a roller with nails. The granules are put in vibrators and vibrated well in order to make them spherical in shape. Then the spherical globules are graded through galvanised iron sieves. The graded material is roasted with coconut oil in roasting pans of open type for gelatinisation. The roasted material is sun-dried for about 8 hours. The dried material is put into a breaker and polishing machine which breaks the clods. After sieving once again to remove the dust and flour, the sago is packed in gunny bags.

Cost of production of sago 90 Kilograms: The cost of production in one of the factories enquired in Salem is given below.

Total quantity of tapioca	...	18,000 bag of 65 kg. each.
Total quantity of sago produced	...	2,570 bag of 90 kg. each.
Cost involved in producing 2570 bags.	...	Rs. 13,765—00
Cost of production per bag of 90 kg.	...	Rs. 53—57.

Marketing of Sago: The well dried and sieved sago packed in double gunny bags are brought to Shevapet a suburb of Salem Town where it is again sorted out and purified at a cost of Rs. 1·50 per bag of 90 kg. The bags of sago thus purified and ready for movement are stored in pucca godowns free from moisture, rat menace and other pests. When prices are favourable, sago is sold. Only big factories are having storage facility while in the smaller factories, it is limited. In such cases they rely on commission agents' godowns for storing the produce.

The quality of sago depends on the care bestowed in the manufacturing processes like washing, roasting, drying, sieving etc. The sago is classified into three categories as first class or first grade (well roasted with milky colour) (ii) second class or second grade, (well roasted with dull white colour) and (iii) Third class or Third grade (Half roasted dull white in colour). Small sized pellets are called sago and the larger ones as 'Pearl tapioca' or "Sago pearls".

Regarding transport, both rail and lorry transport are used, the chief markets being Calcutta and Bombay. Regarding prices there is a general complaint that manufacturers do not get fair prices for their produce. The absence of an organised system of market intelligence is mainly responsible for the exploitation of the cultivators of tapioca by middlemen and merchants.

Merchants in producing centres often visit the areas of production to get an idea of the expected production of sago. They also keep contact with the merchants in consuming areas and fellow traders in other parts of the country. The commission agents in the main consuming markets furnish information to the merchants in the assembling markets by postal correspondence. At Salem the wholesale price of Sago of first grade and second grade varied from Rs. 55 to 62 and Rs. 51 to 59 per bag of 90 kg. respectively in 1962. With regard to price spread of sago the study revealed that the consumer pays Rs. 64 per bag of sago to the retailer where as the manufacturer gets about Rs. 54 to 56 per bag of sago. The difference is due to the margins of middlemen, transport charges and other incidental charges. The consumers' rupee for sago is shared by manufacturer and other agencies in the following manner.

Producer's share	84·1%
Middlemen	9·8%
Transport charges	3·1%
Other incidental charges	3·0%
Total	100·00

Conclusions: Sago manufacture like the sugar industry is a seasonal one since supply of tapioca tubers are seasonal in character. Thus, in Salem only 15% of the factories are working throughout the year by importing tubers in the off season from other distant places like Kerala. The transport of tapioca from these places is mainly through lorries. The disadvantages of lorry transport are little aeration, absence of packing and rough handling which affects the quality. Proper handling, packing and allowing ventilation will improve the quality of sago. There is also a need for improving storage facilities like cold storage so that tapioca can be stored for a longer duration to increase the number of working days of the factories. Artificial drying of sago and tapioca flour will dispense with the exclusive reliance on sunshine which is often risky.

Acknowledgements: The author is grateful to the Professor of Agricultural Economics and staff members of the Agricultural Economics and Rural Sociology section for the suggestions, guidance and help rendered in the enquiry based on which this paper has been contributed.