

Storage of Gur in Madras

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(Received 16—11—1950)

Madras State produces annually $4\frac{1}{2}$ lakhs of tons of *gur*. Most of this is produced during the months of January to April. Taking the local consumption to be more or less uniform throughout the year nearly three-fourths of the total *gur* produced has to be preserved for varying periods and the maximum duration may probably be eight months. Hence unless extremely careful steps are taken for storing this commodity, there is a likelihood of great loss occurring due to the *gur* softening and sticking to the receptacles or running into a viscous mass when stored for considerable periods. There are no means of estimating this loss but in view of the improper and imperfect methods adopted in most of the cane-growing districts for preserving *gur*, loss due to storage seems to be considerable and inevitable at the present time.

The monthly average price for *gur* is furnished in the table below. The prices increase from April—May to September—October and decline from November—December when fresh stocks arrive in the market. The depression from December to April is mainly due to the market being glutted with huge stocks. It is in the interest of the cane grower not to dispose of his entire produce in the peak manufacturing season when minimum prices prevail.

Monthly average price of gur in Madras State.
(per Imperial Maund)

Year	January	February	March	April	May	June
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1946	13-9-3	13-9-3	13-9-3	13-9-3	13-9-3	14-13-0
1947	15-10-0	15-10-0	15-10-0	15-10-0	15-10-0	15-10-0
1948	10-1-1	9-5-0	7-1-6	8-11-6	9-12-7	...
1949	12-9-4	13-11-6	14-15-7	15-7-0	15-15-3	19-7-1

Year	July	August	September	October	November	December
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1946	17-2-10	19-14-7	21-13-0	20-9-2	20-4-2	16-12-4
1947	15-10-0	15-10-0	15-10-0	15-10-0	15-10-0	12-5-0
1948	11-14-0	12-4-8
1949	22-8-0	20-8-0	20-15-4	28-3-7	32-2-1	25-10-8

Among the factors affecting storage of *gur* the chief one is its quality. Good quality *gur* hard in consistency, with a good crystalline structure, and with less of mineral matter, keeps best. Particular cane varieties like B. 208 are noted to yield *gur* of very good keeping quality. Excess liming of juice prior to *gur* manufacture is known to improve the keeping quality of the resulting *gur*. Varahalu (1937) indicated that an atmospheric humidity of 50 to 60% was ideal for preserving jaggery well. Excessive manuring of sugar cane with artificials like sulphate of ammonia is reported not only to interfere with the initial quality of the *gur* but also with its keeping quality. *Gur* from ill-drained lands, where swampy conditions prevail during the monsoonic months though apparently good at the time of manufacture deteriorates quickly on storage. Size and shape of the *gur* preserved will also interfere with its keeping quality.

Storage of *gur* on any considerable scale is done only by the merchants; most of the cane growers sell out their produce immediately after manufacture. Various methods are adopted for storing *gur* in this State and these are detailed below.

Southern Districts: In the Tiruchirapalli, Madhurai and Coimbatore districts small quantities of *gur* intended for domestic consumption are stored by house-holders in earthen pots closing their mouths with cane trash and plastering with cowdung and red earth,

Merchants stock *gur* in gunnies inlaid with palm-leaf mats. Each bag contains 140 lb. of *gur* and the bags are kept separately but not stacked one above the other. Rare cases of packing *gur* in dealwood boxes are also met with. Bulk storage of *gur* is done by spreading a layer of cane trash 6" to 8" thick on the floor of a pucca room on which *gur* cubes are spread evenly to a height of about 9" to 1 foot. Three layers of *gur* cubes alternating with trash layers are spread and *gur* is preserved for varying periods. Some merchants fill *gur* in ordinary gunny bags and keep them in godowns on the floors of which paddy husk or groundnut shell is spread to ward off dampness.

West Coast: In the South Kanara district, solid as well as semi-solid *gur* is prepared. Solid *gur* will be in the form of moulds each weighing 7-14 lb. These moulds are packed in leaves known locally as "mandakas" and stored in a place to which smoke from the kitchen or the hearths has access. This is reported to preserve *gur* well. Semi-solid *gur* is poured into galvanised iron tins of four gallon capacity, each tin holding about 56 lbs. of the stuff. These tins are stored in damp-proof godowns.

Central Districts: The methods adopted are practically the same as those followed in the Southern districts. Bagasse instead of trash is spread in layers for bulk storage as noted above. The gunny bags inlaid with mats are stacked one over the other and the stack is rearranged once

in three months to put the lowest bag above and bring the topmost to the bottom. When large quantities of *gur* are to be stored for an year or more, godowns are specially constructed. In a well-ventilated room, low cross-walls about $1\frac{1}{2}$ feet in height from the floor and at 2 feet distance from each other are built. On these walls stone slabs are put and on this improvised platform walls are built allround leaving a corridor 2' wide between this inner structure and the outer room. In this inner room bagasse is spread on the floor and *gur* stored in $\frac{1}{2}$ foot layers alternating with bagasse layers of equal thickness. At the top bagasse is spread and wooden planks are put above this layer to keep off moisture.

Ceded Districts: In the Hindupur taluk *gur* is prepared in the form of small pellets each weighing about two tolas. These are heaped on cemented floors to a height of four feet and turned over once in two months, alternately the pellets are filled into gunny bags and stored.

At Hospet *gur* is made into slabs. They are also broken into convenient slices and stored in double-walled bags of date-palm leaf and are kept in a dark room over wooden planks.

Northern Districts: In the Srikakulam district *gur* is put in small earthen pots. These pots are inverted one over the other and stored in a room. On the floor of this room sand is sprinkled.

In the Anakapalli tract, *gur* is prepared in the form of bucket-shaped moulds. These moulds are wrapped in a piece of hessian cloth whose sides are stitched together. These moulds are stored 5 to 6 deep in any vacant house. No extra precautions are taken with regard to flooring or ventilation of these storage houses.

In the East Godavari district and in parts of West Godavari, storage godowns are specially built for preserving *gur* over a long period. Godowns in the former district are of a better type and every precaution is taken to ward off moisture and attack by ants. Most of these godowns are found in the Ramachandrapur taluk of this district and a few are met with in Kakinada and Peddapuram taluks also. Except in a few cases almost all of these godowns are owned by merchants.

Gur is considered fit for storage only when manufactured from the end of January to the end of March. In the summer months it is rarely necessary to smoke the godowns. Usually one and occasionally two smokings are given during this period. During the monsoon months smoking may be necessary once every fortnight. In all fourteen to fifteen smokings are given during one year, each time about 5 bags of paddy husk being used for each compartment. If the godown is partly empty the amount of husk used is comparatively less than when it is full. Care is taken to store

the best quality *gur* on the topmost tier, for the chances of the smoke coming into contact with the *gur* are less than those in the lower tiers. Once the smoking is commenced it will not be possible to enter the godown till after six days, until the *gur* inside has cooled down. Thus the periodicity of smoking and the quantity of paddy husk necessary for smoking each time depends upon the discretion of the person in charge of the godown. It should be noted that in this godown it is possible to take out or put in more stocks without in any way lessening the keeping quality of the *gur* stored in it. This is the advantage the godown has over the permanently sealed, pucca godowns that may be found in the Central districts.

Smoking is a crude way of keeping off moisture from deleteriously affecting the keeping quality of *gur*. The technique of smoking is not standardised but is a matter of discretion of the person in charge of the godown. Barring these two defects the godowns in practice have turned out to be very effective store houses for *gur* in which the stuff could be kept undeteriorated for over a period of 12 months or over.

There is only a slight fading of the colour of the *gur* thus stored, consistency remaining practically the same. The owners of the godowns charge the people storing *gur* at the rate of 5 to 8 annas per basket for the entire season. It is estimated that about 3,25,000 imperial maunds of *gur* are preserved in such godowns each season and that the loss in storage in these godowns will be 1.2% on the weight of *gur* stored. In view of these advantages it is desirable to build such godowns either individually or on a co-operative basis throughout the State and arrange for the storage of *gur* in them. This will not only enable the cane growers to sell their produce at a time when the prices are ruling high but will also prevent the national loss involved in improper storage and handling of *gur*.

Summary and conclusions: Even though Madras is chiefly a *gur* producing state and *gur* is a commodity required for consumption throughout the year, effective measures for preserving it are not extensively in vogue. Specially designed and efficient godowns are to be met with in East Godavari district and these are well worth copying in the other parts of the State.

Adverse effects of wet weather are minimised by smoking in these godowns. It is necessary to devise a more hygienic and upto date method for this.