

G.I. APPLICATION NUMBER – 723

Application Date: 02-12-2020

Application is made by Haritzone Farmers Producer Company Limited at Rasulpur Jatan, Kakra, District: Muzaffarnagar - 251 318, Uttar Pradesh, India for Registration in Part A of the Register of **Muzaffarnagar Gur (Jaggery)** under Application No. 723 in respect of Jaggery falling in Class - 30 is hereby advertised as accepted under Sub-section (1) of Section 13 of Geographical Indications of Goods (Registration and Protection) Act, 1999.

A) Name of the Applicant : Haritzone Farmers Producer Company Limited

B) Address : Haritzone Farmers Producer Company Limited,
Rasulpur Jatan, Kakra,
District: Muzaffarnagar - 251 318,
Uttar Pradesh, India

Facilitated By:

Department of DIPEDC, MSME and Export
Promotion, Govt. of Uttar Pradesh.

C) Name of the Geographical Indication :

MUZAFFARNAGAR GUR (JAGGERY)



D) Types of Goods : **Class 30 - Jaggery**

E) Specification:

Muzaffarnagar Gur (Jaggery) is the most ancient sweetening agent in India. This is a low grade non centrifugal sweetener consumed in Uttar Pradesh and all over in India. Muzaffarnagar Jaggery/Gur is a pure, traditional, unrefined form of sweetener. It is a good source of minerals like Calcium, Iron, Phosphorous and Protein. Jaggery/Gur home based cottage industry is very popular in Uttar Pradesh.

Muzaffarnagar Gur is a natural traditional sweetener, a processed form of concentrated sugarcane juice processed as golden yellow colour product.

Jaggery/Gur is produced in different shapes and sizes at Muzaffarnagar in UP, like Basket, Laddoo, Pansera, Chaquoo, Khurpa, Ruscutt, Desi Shakkar (powder Jaggery/Gur) and many more.

Nutrition Components of Muzaffarnagar Gur: (Gur in 100 grams)

1.	Carbohydrate	88	gm.
2.	Sodium	27	mg.
3.	Potassium	453	mg.
4.	Calcium	60	mg.
5.	Phosphorous	30	mg.
6.	Iron	12	mg.
7.	Moisture	11.80	%
8.	Calories	358	kcal
9.	Sucrose	65 - 68	%
10.	Glucose	10 - 15	%
11.	Water	3 - 10	%
12.	Proteins	0.25	mg.
13.	Copper	0.8	mg.
14.	Manganese	0.2 - 0.5	mg.
15.	Zinc	0.2 - 0.4	mg.
16.	Vitamin - A	3.8	mg.
17.	Vitamin - B	20.0	mg.
18.	Vitamin - C	7.00	mg.
19.	Vitamin - D	6.50	mg.
20.	Vitamin - E	111.30	mg.

F) Description:

Jaggery locally called 'Gud' in Uttar Pradesh is a natural traditional sweetener, a processed form of concentrated sugarcane juice processed as golden yellow colour product. It is a part of diet of the rural population and products are now gaining popularity owing to high nutritive value. For improving colour, appearance and high marketability of the produce, organic origin is gaining importance.

Gur (Jaggery) is a non-centrifugal sweetener produced by sugarcane juice. The traditional practices involved in making jaggery are usually tailored using **sukhlai** (a traditional powder for purification and good color of Gur) to meet consumer requirements.

Often called 'gur' in Uttar Pradesh, jaggery is used in sweet and savory dishes as well as beverages. Because it is pressed from organic sugarcane, it retains natural vitamins and minerals not found in table sugar, such as potassium, magnesium, phosphorus, iron, and calcium. Even the ancient healing practice of Ayurveda recognizes the importance of jaggery for promoting good health.

A healthy alternative to ordinary sugar for sweetening, cooking and baking, people love naturally delicious, mineral-rich, certified organic jaggery. It's made from the extracted juice of organically grown sugarcane, produced to form a gorgeous, rich, healthy sweetener that has been used in traditional diets in India for centuries.

Jaggery contains rich molasses and trace minerals naturally present in sugar cane juice. This is what gives it such a complex, bright, fruity flavor beyond just being sweet! The color of traditionally-made, chemical-free jaggery ranges from golden to dark brown.

Gur is manufactured in many shapes and sizes and some of the common shape of gur manufactured are listed below:

- **Laddu (bheti)** - Small spherical / semi-spherical lumps weighting 50 to 250 grams.
- **Dhayya (bheti)** - semi-spherical lumps weighting 2 to 3 kg
- **Pari** - semi spherical lumps weighting 1 to 2 kg
- **Chaukhanta** - Trapezodial lump weighting 4 to 5 kg
- **Pansera** - Semi-spherical lumps weighting 5 to 6 kg.
- **Dhansera** - Semi-spherical lumps weighting 9 to 10 kg.
- **Balti** - Tapered cylindrical lumps weighting 10 to 20 kg
- **Chaku** - Trapezodial lump weighting 10 to 20 kg
- **Khurpa pad** - Small trapezoidal slabs weighting 250 to 500 grams

January is when gur is used in all kinds of sweets – from laddoos and puran polis to kheer and pitheys. The year starts with harvest festivals: Makar Sankranti in the north.

Use equal amounts or a little less jaggery in place of sugar in a recipe. Jaggery is rich - both in flavor and nutrition, so a little bit can go a long way. If you keep jaggery in the refrigerator, be sure to bring it to room temperature before using in a recipe. Mash with fingers or grate as much as you need using a regular cheese grater. Remember, for best results, use room temperature jaggery. Make jaggery syrup to use in recipes calling for liquid sweeteners such as honey, maple syrup, molasses, corn syrup, etc. For every tablespoon of jaggery, use one teaspoon of water. Blend or whisk well to make syrup. Because jaggery syrup is naturally sweet and rich, you can use less in your recipes. For example, if a recipe calls for ½ cup honey, try 1/3 cup jaggery syrup.

The producers of Gur at Muzaffarnagar and nearby districts are also spice up the *gur* with dry fruits, black pepper, dried ginger coconut, and sometimes, even carrots. The golden-hued *gur* that's more in demand. "In popular perception, its colour and texture are indicators that all impurities have been removed,"

The soil varies from sand to thick clay, but the greater portion is a fertile loam, and most of the District is capable of irrigation from canals or wells. the District as a whole ranks as one of the finest in the United Provinces. The most valuable of the other crops are sugar-cane (179 square miles) and cotton (60 square MILES.)

G) Geographical area of Production and Map as shown in page no:

The Muzaffarnagar Gur is manufactured in the following districts of Uttar Pradesh namely:

District /Location	Latitude	Longitude
Muzaffarnagar	29° 28' N	77° 44' E
Baghpat	29.0468° N	77.3324° E
Shamli	29.4537° N	77.2865° E
Merrut	29° 01' N	77° 45' E
Bijnor	29° 23' N	79° 11' E
Saharanpur	29° 58' N	77° 23 ' E

H) Proof of Origin (Historical records):

Tradition represents Muzaffarnagar having formed a portion of the Pandava kingdom, which had its capital at Hastinapur in the adjoining District of Meerut, and at a more historical date as being included in the dominions of Prithwl Raj, the Chauhan ruler of Delhi. Authentic history first shows us the country around Muzaffarnagar at the time of the Musalman conquest in the thirteenth century, and it remained a dependency of the various dynasties who ruled at Delhi until the final dissolution of the Mughal empire.

Muzaffarnagar region is prominently known for its Gur (Jaggery) production since very long time and the biggest Jaggery Mandi (market place) in Asia is existing at Muzaffarnagar. Prominently nearby districts like - Merrut, Baghpat, Shamli, Bijnore and Shaharanpur has similar geo climatic condition and producing same type of Gur since very long time.

Gur is produced in almost all the districts of U.P. Analysis made of the past decades revealed the fact that Meerut division comprising of five districts accounted for about two-third of gur that arrived in market. **Bijnor, Shamli, Baghpat, Merrut and Shajahanpur are also important Gur producing districts alongwith Muzaffarnagar** major Gur producing areas where more than 10,000 tonnes of gur.

Production process of jaggery in Muzaffarnagar Sugarcane is cultivated in an area of about 1.56 million hectares in U.P., which accounts for about 52.27 per cent of area under this crop in the country. Average production of sugarcane during (1975-76 to 1985-86) in U.P. was 68.32 million tons which are about 42.17 percent of sugarcane production in India. About 62.9 per cent of sugarcane produced in the state was used for gur and khandsari as against 51.85 per cent at the national level. The U.P. produces about 3.87 million tons of gur and khandsari which is about 46.57 per cent of the total production of commodity in India.

Baghpat is identified with the Vyaghraprastha, or 'place of tigers' of the Mahabharata, and its name is said to have been changed from Bagpat to Baghpat by one of the Delhi emperors. From 1869 to 1904 the place was administered as a municipality, with an average income and expenditure of Rs. 6,000, the chief tax being octroi. It has now been constituted a 'notified area.' Formerly Baghpat was the chief Centre of the sugar trade with the Punjab, but Meerut and other towns have now taken its place to a large extent.

In 1903-04, 340 square miles were irrigated by canals and 130 by wells, other sources supplying only 7 square miles. Well-irrigation is especially required in the western tract to supplement the supply from the Eastern Jumna Canal. Large quantities of unrefined sugar are also exported, usually by railway, but the trade with the Punjab is partly carried on by means of pack-camels.

A number of Gazetteers has mentioned about the Gur production from Muzaffarnagar and nearby districts with the reputation, trade and commerce from this geographical region.

Khekra- Town in the Baghpattahsll of Meerut District. It is said to h[^]ve been founded 1,600 years ago by Ahirs, who were ousted by Jats from Sikandarpur. In the Mutiny the owners rebelled, and the land was confiscated. The place is administered under Act XX of 1856, with an income of about Rs. 2,000. It is rising in importance as a centre of the grain and sugar trade.

Meerut District (Merat)- It is bounded and river" on the north by Muzaffarnagar District and on the south system, by Bulandshahr, while the Ganges divides it on the east from Moradabad and Bijnor, and the Jumna on the west from the Punjab Districts of Karn and Delhi. On the banks of these great rivers are stretches of inferior low-lying khddar land. The rest of the District is, for the most part, a level upland, the edges of which are scored by ravines. This may be divided into three main tracts. The western division, stretching almost to the Upper Ganges Canal, has an extraordinarily rich and uniform soil, except immediately above the rivers Jumna and Hindan.

The prosperity of the city was originally due to the presence of a large cantonment, and the population was in fact larger in 1853 than in 1872. The extension of the North-Western Rail- way in 1867 and 1869, however, laid the foundation of a more extended trade than the supply of local needs. In 1887 a bonded warehouse was opened about a mile from the city station, with which it is

connected by a branch line, and 8 or 9 lakhs of maunds of grain, and nearly as much sugar, pass through this every year.

Muzaffarnagar: The district of Muzaffarnagar forms a portion of the Meerut Bound, division, and is situated in the Doab of the Ganges and the Jumna, between the districts of Meerut, on the south and Saharanpur on the north. On the west the Jumna separates it from the Panipat and Thanesar tahsils of the Karnal district of the Panjab; and on the east the river Ganges forms the boundary between this district and the Bijnortahsll of the district of the same name.

I) Method of Production:

Muzaffarnagar is an economically rich district situated in the most fertile plains of two great rivers Ganga and Yamuna in the Indo-gangetic plains, with agricultural land irrigated by both surface water as well as groundwater. The climatic conditions in Muzaffarnagar suitable for Sugarcane Production of best quality Jaggery.

Tools & Equipment: Sugarcane Crusher; 3 heavy Pan with heavy Furnace; Calchhul (Chhanauta), Cloth for filtering sugarcane juice.

Raw Material: Sugarcane

Making Process of Gur (Jaggery):

Main steps in jaggery making process:

- Extraction of Juice
- Clarification of juice
- Concentration of juice
- Extraction of Juice:

The basic manufacturing process goes as follows:

First added vegetable origin simultaneously small quantity of lime water is added to reduce the acidity of juice but not to the extent to make juice neutrals because taste and colour of gur produced will be inferior. In this lime process pH maintained 6.2 to 6.5. In some cases super phosphate. P₂O₅, and 0.25% concentrated hydrous power are also added to obtain good colour of Gur (jaggy). While juice temperature rising scum is removed by perforated strainers.

The processing techniques of the Gur(jaggery) are mostly traditional. However, the condition is being changing with some advancement in processing such as new and uniform methods of heating to produce quality jaggery, automatic jaggery manufacturing plant, trend to produce chemical free called as organic jaggery and attempts to produce jaggery. The general traditional unit operations of jaggery making are depicted.

- 1. Extraction of juice Three roller vertical cane crusher** is used to extract juice for jaggery production. The crusher extracts about 60 per cent of juice under dry crushing and therefore 20 per cent juice goes waste in bagasse. It is powered by an electric motor and generally accept 5 to 6 cane at a time. The extracted juice is collected in a masonry tank or self dug pots in which silt settle down.
- 2. Juice boiling Next stage after extraction is juice boiling.** It is an important step in the processing of cane for jaggery manufacture. The open triple pan furnace is used in this region. It is single grate type furnace using bagasse as a fuel. No supplementary fuel or crop residue is required. The overall over-utilization or efficiency of the furnace seems to be very low. The *gur*-making process while sweet-smelling mist from boiling sugarcane juice engulfed the area. Before boiling, the cane is crushed in generator-operated machines and collected in a

cement tank. A drain then takes it to a *kadai* (pan) at the furnace-end. The pan is the third in a series of three and the least hot. Once the juice is heated to the required temperature, it's transferred to the second pan and cleansed of impurities.

- 3. Clarification of juice In general, the jaggery quality,** storability and acceptability depends on the extent of juice clarified during boiling, Out of serious vegetative clarificants musk. **Dana or sukhlai** (*kydia calycine*) are commonly used. Chemical clarificants like hydrose (sodium hydrosulphate) is also used along with vegetative clarificants.

A solution made of stems of wild ladyfinger, locally called *sukhlai* (*Abelmoschus spp.*), is used in clarification. The *sukhlai* is crushed and put in water. Polymers from the stems make the water sticky. A can full of this sticky solution is added to the boiling sugarcane juice, it makes the impurities in the juice rise up and they are ladled off. It's the demand "*Sukhlai* is safer as it does not stay in *gur* unlike chemicals,"

Importance of organic clarificants the variability among cultivated and wild population in *Abelmoschus manihot* var. *tetraphyllus*. *Sukhlai* based organic clearant in the form of concentrated product which have high demand as alternative for inorganic chemicals/clearants used in jaggery industry.

- 4. Juice concentration:** This step is involved in the process of boiling is intermittently removed. Juice is boiled briskly with the object of evaporating the water. In the process of concentrating the juice mustard oil is added to prevent excessive frothing.

The clear syrup then gets concentrated and after the required consistency is reached, it's transferred to another pan right at the mouth of the furnace. This pan is the hottest of the three pans. Here the final concentration is done. The semi-solid product is then transferred to a flat platform, *chak*. Here it is cooled and a handful of *phatki* or alum is added to enhance the *gur*'s colour.

- 5. Cooling and moulding:** As soon as the juice is concentrated to a desired level which is judge by an experienced jaggery producer, the content are transferred to a wooden / masonry tray of either circular or rectangular shape. This tray serves both the purpose of cooling and moulding. Hot syrup is worked out for some time after that it is left to solidify, Generally, irregular shape known as *Khurpa* as well as cake shape of about 2kg of jaggery are manufactured. No standard shape and size is maintained colour of jaggery is dark brownish having fair texture.

Products of Jaggery (Gur): Most of the Jaggery (Gur) is prepared in solid form 80% and the remaining 20% is prepared in liquid as well as granular form.

- 1. Liquid Jaggery (Gur):** At 104 °C temperature of the juice, liquid jaggery stage is attained. The boiling pan is then removed from furnace and the liquid jaggery is filled in stainless steel containers for cooling. The liquid jaggery settles naturally in 8 to 9 days. To avoid crystallization, citric acid is applied @ 400 mg/1kg. For preservation of liquid jaggery, potassium metabisulphite @ 1 gm/1 kg is mixed in liquid jaggery. After settling, liquid jaggery is filtered slowly without disturbing the sediment deposited at bottom of container. It is then allowed for gentle boiling. The hot liquid jaggery 72 is filled in container. It is then allowed for gentle boiling. The hot liquid jaggery is filled in sterilized glass bottles and immediately capped.
- 2. Powder Gur:** Jaggery (Gur) in powder form has better colour, very low moisture content with high keeping quality and easy to use however, the jaggery powder is prepared manually. For powder making jaggery (Gur) is further concentrated up to 120 to 122°C temp. and then poured in cooling pit. With wooden marker cross lines are drawn over jaggery (Gur) mass kept in cooling pit in order to get small jaggery pieces. Jaggery pieces kept under cloth cover are

dried in sun. Dried jaggery (Gur) is reduced to powder form by wooden hammer. After screening and drying, powder jaggery (Gur) is filled in polythene bags as per size grades.

3. **Solid Gur** in uniform shape and size The diversity in shape of single commodity does not attract any one of the development of equipment/gadgets for the product handling, therefore for the uniformity of shape and size. The juice extracted through mechanical crushers is boiled, clarified and concentrated. The concentrated semi-solid mass after puddling in cooling pan is poured into these frames and levelled up with ladle. After about 40-45 minutes when jaggery is set, brick and cubes are removed by dismantling the frame,

Packaging & Marketing:

- i) **Packaging:** Sugar crystals are dried by being tumbled through heated air in a granulator. The dry sugar crystals are then sorted by size through vibrating screens and are then packed in the familiar packaging we see in grocery stores or in bulk packaging for industrial use. Sugar also attracts bacteria. Branded, packaged sugar is dust-free and hygienic as it packed without direct hand contact. The compulsory packaging of sugar in jute bags has been relaxed further and only 20% of the production is to be mandatorily packed in jute bags. Jaggery is packaged traditionally under different packaging materials like paddy straw, banana leaves, gunny bag, polythene sheet, etc., which possess poor barrier properties against moisture, light, air, etc., leading to spoilage or deterioration of Jaggery quality.

Now a days Jaggery is packed in food grade material which guarantees the safety and integrity of the product. In case of smaller consumer packs, the product need to be packed in food-grade plastics conforming to relevant Indian Standard or any other suitable non-toxic material. The fill of each package shall comply with weights and measures legislation and legal metrology.

- ii) **Marketing from Muzaffarnagar Gur Mandi:** Domestic; International:

Domestic Sugar consumption is forecast to 24 million MT for current year. Bulk consumers account for two-third of total sugar consumption in India.

International sugar prices have been lower than domestic Indian prices since October 2016. When Domestic price of Sugar, goes down the level of Rs. 3200 per quintal, it makes functioning of sugar mills and Khandsari almost unprofitable.

J) Uniqueness:

Gur use in Different Manner: Several research paper studies, Gazetteers, Govt. reports, emphasizes the importance, value and existence of Muzaffarnagar Gur. It is a world renowned food product with export potential. Muzaffarnagar Gur is nutrient food and it has several health benefits. It is a age-old product. The whole manufacturing process of Muzaffarnagar Gur is a traditional. The Muzaffarnagar Gur making machineries of the plants are fabricated by local artisans.

Health Benefits of Muzaffarnagar Jaggery

- Jaggery of any type is better for health. It has immense health benefits.
- High Fiber and Mineral Content: It is rich in minerals, salts, vitamins and even contains some fiber.
- The darker the jaggery is in color, the richer it is in mineral content (particularly iron content) and the better it is for your health.
- It is much more complex therefore does not increase the sugar level of the blood very quickly.
- It provides energy slowly, over a longer period. Although diabetics should avoid jaggery,

- It is still better in this respect for diabetics than sugar is.

Respiratory Tract Cleanser:

- Muzaffarnagar Gur has been in use as a lung, throat, and respiratory tract cleanser as well as an additive to the local remedies for coughs and colds.
- This cleansing property of gur has been proven over many generations. The regular intake of Gur is particularly highly beneficial for those who work in kilns, cement factories, stone crushers, dusty workplaces, furnaces and those who have to do a lot of driving, due to the effect that these professions can have on the respiratory system.
- **Cooling Effect:** Gur, usually made into a drink by dissolving in water, has a remarkable cooling effect on the body during the summer.
- **Warming Effect:** Gur is manufactured and consumed in the winter. It has a warming effect on the body and is nutritious as well.

Medicinal importance:

- Reported that the dietary intake of jaggery prevents the atmospheric pollution related toxicity and the incidence of lung cancer. Jaggery, a product of sugarcane, is such a product which is rich in important minerals and vitamins.
- The magnesium strengthens the nervous system, helps to relax our muscles, gives relief from fatigue and takes care of our blood vessels.
- The potassium and low amount of sodium present in jaggery maintain the acid balance in the body cells, and also combat acids and acetone, and control our blood pressure.
- Iron helps to prevent anaemia. It also helps to relieve tension and takes care of asthma, as it has anti-allergic properties.
- The preventive ability of jaggery on smoker's smoke induced lung lesions suggest the potential of jaggery as a protective food for workers in dusty and smoky atmosphere, even for those who are engaged in woollen industries, the wool dust clogged in the food pipe could be cleared with jaggery.
- The moderate amount of calcium, phosphorous and zinc helps to maintain optimum health.
- It also purifies the blood, prevents rheumatic afflictions and bile disorders and thus helps to cure jaundice.
- Thus, jaggery helps to breathe easier and counters the pollution problems naturally.

K) Inspection Body:

1. One Representative from Department of Industries - Office of GMDIC
2. One Representative from Agriculture Department.
3. One Representative from District Administration.
4. Representative of NABARD, Uttar Pradesh
5. One Representative from Traders and Exporters of this GI Product.
6. Representative of related applicant FPO (Farmers) and one concern NGO in the Geographical area.

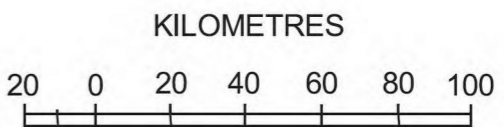
L) Others:

Muzaffarnagar is the biggest Gur mandi (Jaggery market) in the Asia and highest Gur producing region in the country since very long time with the many variety of gur according to the need and demand of market. The Gur has exported from many countries, which has produced in this Geographical area.

Geographical area of Production of Muzaffarnagar Gur



UTTAR PRADESH
ADMINISTRATIVE DIVISIONS 2011



BOUNDARIES:
 INTERNATIONAL..... ———
 STATE..... ———
 DISTRICT..... ———
 TAHSIL..... ———

HEADQUARTERS:
 STATE..... ★
 DISTRICT..... ●
 TAHSIL..... ●

JPN - JYOTIBA PHULE NAGAR
GBN - GAUTAM BUDDHA NAGAR
KRN - KANSHIRAM NAGAR
AMB - AMBEDKAR NAGAR
SID - SIDDHARTH NAGAR
SKN - SANT KABIR NAGAR
KUS - KUSHINAGAR
SRNB - SANT RAVIDAS NAGAR (BHADOHI)

The Muzaffarnagar Gur is manufactured in the following districts of Uttar Pradesh namely:

Muzaffarnagar 29° 28' N 77° 44' E
 Baghpat 29.0468° N 77.3324° E
 Shamli 29.4537° N 77.2865° E
 Merrut 29° 01' N 77° 45' E
 Bijnor 29° 23' N 79° 11' E
 Saharanpur 29° 58' N 77° 23' E

- | | |
|---------------------|-------------------------|
| 1 - Chandausi | 12 - Chauri Chaura |
| 2 - Garhmukteshwar | 13 - Tamkuhi Raj |
| 3 - Sikandra Rao | 14 - Bhatpar Rani |
| 4 - Bakshi Ka Talab | 15 - Nizamabad |
| 5 - Chakarnagar | 16 - Ghosi |
| 6 - Ramsanehighat | 17 - Madhuban |
| 7 - Sirauli Gauspur | 18 - (Maunath Bharjanj) |
| 8 - Sohawal | 19 - Muhammadabad Gohna |
| 9 - Domariyaganj | 20 - Belthara Road |
| 10 - Shohratgarh | 21 - Sikanderpur |
| 11 - Campierganj | 22 - Mohammadabad |

Where the district name differs from its headquarters name, the latter is given within brackets.