

Varieties, Cultivation and Uses of Sugarcane in India

Project Report
Submitted by

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funded by

DSM Sugar Mills Ltd.
Mansoorpur
Muzaffarnagar



**Shri Ram College
Muzaffarnagar**

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DHAMPUR SUGAR MILLS LIMITED

Unit: Mansurpur,
Distt Muzaffarnagar - 251203
+91-1396 – 252238, +91-9927052238, +91-1396 – 252170

30/1

Ref:

Date: 22/6/2019

To,

Dr Aditya Gautam
Director,
Shri Ram Collegem
(Shri Ram Charitable Trust),
Muzaffarnagar

Sub: Grant Release Letter for Gur Mahotsav.

Dear Sir,

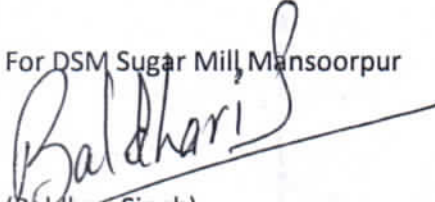
We have received your request for a grant towards the research project on 'Varieties, Cultivation and Uses of Sugarcane in India'.

As you know, our organization exists to serve our community and build a better tomorrow for all of our citizens. After careful consideration, it is our pleasure to inform you that the request has accepted. Please find Enclosed the Cheque No. 646096 Dated 20/6/2019 of Rs 50,000 in favour of Shri Ram Charitable Trust.

Kindly Acknowledge receipt of the amount. We appreciate the commitment and support you are providing and therefore wish your Organization the best of luck and success for the event.


Kind Regards,

For DSM Sugar Mill, Mansoorpur


(Baldhari Singh)
Signatory Authority

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SHRI RAM COLLEGE

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CIRCULAR ROAD, MUZAFFARNAGAR

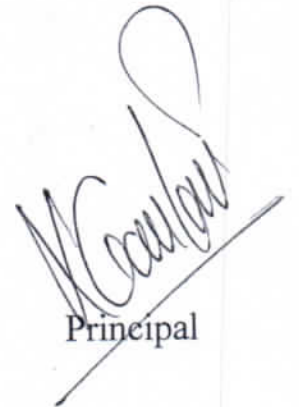
'A' Grade Accredited by NAAC

Date: 24.06.2019

Mr Rajdeep Saharawat, Department of Basic Science
Dr K.S. Barman, Department of Agriculture
Shri Ram College, Muzaffarnagar

We are pleased to inform you that the Project Proposal entitled "**Varieties, Cultivation and Uses of Sugarcane in India**" submitted by you to the Management Committee, which is related to DSM Sugar Mill Mansoorpur has been approved and an amount of Rs. 50,000 has been sanctioned for the Project in your department.

Please start working on the above said project and take necessary action for timely completion of the project.


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Utilization Certificate

| S.N. | Detail of sanction of Fund with Project name and Duration | Amount |
|------|---|-----------------|
| 1. | 30-Day project on Varieties, Cultivation and uses of Sugarcane in India , Date of Sanction of Fund- 22-06-2019 as per Sanction Letter | 50000.00 |
| | TOTAL | 50000.00 |


It is Certified that out of Rs. 50000.00 (Rs. Fifty Thousand Only) of grants sanctioned by M/s DSM Sugar Mill, Mansoorpur during the year 2019-20 in favor of Shri Ram College, Muzaffarnagar, a sum of Rs. 50000.00 has been utilized for the purpose of the project for which it was sanctioned and that the balance of Rs. Nil remaining unutilized at the end of the year has been surrendered. The Extra amount (If any) is met out by Shri Ram College.

2. Certified that we have satisfied our self that the conditions on which the grant was sanctioned have been duly fulfilled/are being fulfilled and that we have exercised the following checks to see that the money was actually utilized for the purpose for which it was sanctioned.

Kinds of checks exercise-

- 1 Checking of cash book
- 2 Checking of payment vouchers.
- 3 Checking of expenses bills.

For Shri Ram College


Secretary

Place: Muzaffarnagar

Date- 28-08-2019


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For Goel Rakesh & Co.
Chartered Accountants



Rakesh Kumar Goel
Proprietor

M. No. 071858

FRN : 003374C

Varieties, Cultivation and Uses of Sugarcane in India

Abstract:

Sugarcane, botanically known as *Saccharum officinarum*, belongs to poaceae family. The grass is growing on large scale in west UP and so is most important crop of the region. The plant is growing for the purpose of sugar manufacturing but also used for a number of purposes. The farmers used a number of varieties of plant according to the climate as well as other characteristics like maturation, sugar content and others. In Uttar Pradesh different varieties which are sown are CoS 687, CoS 8436, CoS 88230, CoS 95435, CoSe 91232, Co 1148, CoS 767, BO 91 etc. Being a long duration crop, it provides a good benefit to the farmers.

Keywords: sugarcane, different varieties

Introduction:

Sugarcane belongs to bamboo family of plants and is indigenous to India. It is the main source of sugar, gur and khandsari. About two-thirds of the total sugarcane produced in India is consumed for making gur and khandsari and only one third of it goes to sugar factories. It also provides raw material for manufacturing alcohol.

A number of varieties have been grown in different states of India as per climatic conditions and characteristics. Largest area is cultivated in India around the world and in India, west Uttar Pradesh is known for the highest sugarcane production. Among 30 district of UP involved in sugarcane production, Muzaffamagar, Meerut, Bijnor, Moradabad, Saharanpur, Kheri, Deoria, Bulandshahr, Ghaziabad, Bareilly and Sitapur are the important ones.

Conditions of Growth:

It is a long duration crop and requires 10 to 15 and even 18 months to mature, depending upon the geographical conditions. It requires hot and humid climate with average temperature of 21°-27°C and 75-150 cm rainfall.


In the latter half, temperature above 20°C combined with open sky helps in acquiring juice and its thickening. Too heavy rainfall results in low sugar content and deficiency in rainfall produces fibrous crop. Irrigation is required in areas receiving lesser rainfall than the prescribed limit. Short cool dry winter season during ripening and harvesting is ideal.

Frost is detrimental to sugarcane. Therefore, it must be harvested before frost season, if it is grown in northern parts of the country where winters are very cold and frost is a common phenomenon. On the other hand, hot dry winds are also inimical to sugarcane.

It can grow on a variety of soils including loams, clayey loams, black cotton soils, brown or reddish loams and even laterites. In fact, sugarcane can tolerate any kind of soil that can retain moisture. But deep rich loamy soils are ideal for its growth.

The soil should be rich in nitrogen, calcium and phosphorus but it should not be either too acidic or too alkaline. Sugarcane exhausts the fertility of the soil quickly and extensively and its cultivation requires heavy dose of manures and fertilizers.-Flat plain or level plateau is an

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advantage for sugarcane cultivation because it facilitates irrigation and transportation of cane to the sugar mills.

Production:

India has the largest area under sugarcane cultivation in the world and she is the world's second largest producer of sugarcane next only to Brazil. The cane production registered a dramatic increase of 93 per cent in the decade 1951-61 as a result of diversification of agriculture but this spurt slackened to 14.9 per cent growth between 1960-61 and 1970-71 mainly as a result of the farmers withdrawal of land under cane owing to internal market fluctuations.

However, production began looking up again with the establishment of sugar mills during the decade 1971-81 and growth rate was 22 per cent. The production of sugarcane reached an all time record 299.3 million tonnes in 1999-2000 after which varying trends have been observed. In the year 2003-04, production of sugarcane in India stood at 236.4 million tonnes.

As in case of production, area under sugarcane cultivation registered a rapid increase from 1.7 million hectares in 1950-51 to 4.1 million hectares in 1998-99 after which the area under sugarcane cultivation increased at a slow rate. In fact, area under sugarcane cultivation decreased from 4.4 million hectares in 2002-03 to 4.0 million hectares in 2003-04.

The yield of sugarcane doubled in four decades increasing from just 33 tonnes/hectare in 1950-51 to 65 tonnes/hectare in 1990-91. The process of increase in yields continued till 1997-98 when it stood at 71 tonnes/hectare. The yield remained at this high level for three consecutive years from 1997-98 to 1999-2000. After that, the yield had rapidly declined and stood at 59 tonnes/hectare only in 2003-04.

Varieties of sugarcane:

Sugarcane Research Institute set up at Coimbatore in Tamil Nadu started functioning in 1912. It evolved better varieties of cane, particularly for northern India. One of the important achievements of this institute was introduction of Ratooning which became very popular in India. In this system the sugarcane is cut leaving the root intact in the soil.

Ratoon crop is the second or any other successive crop obtained from the roots left over in the field from the first crop. This is widely practised in different parts of the country due to its low cost of production and relatively shorter maturation period because cost inputs and time are saved as there is no need for fresh sowing and growing of roots. However, productivity decreases with each passing year and Ratooning becomes uncommercial after one or two years.

In Uttar Pradesh different varieties which are sown are CoS 687, CoS 8436, CoS 88230, CoS 95435, CoSe 91232, Co 1148, CoS 767, BO 91 etc.

Sugarcane Cultivation: Methods for Cultivation and Processing of Sugarcane

The native method of sowing sugarcane is to plough the land some three to five times, the plough going round and round the field and forming a fine seed-bed about 10 to 15 cm deep.

Next the field is levelled and the cuttings of seed cane are planted.


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New canes are usually planted by taking cuttings from old plants. These cuttings become established and after a few days buds sprout to form new stalks. Six to ten stalks grow from each plant, and the sugarcane then takes from one to two years to mature.

Little work is done in the field while cane is growing, except in the early stages when plants are kept free of weeds. Before the crop is harvested the field may be fired to burn off dead foliage to get rid of pests from the fields. The crop is then cut by hand.

The canes are loaded on to trucks or tractors or by any other fast means of transportation to take them quickly to the mill for the processing as early as possible to preserve the high quality of sugar. Sugarcane is a perennial crop and the same plants could continue to produce cane for many years.

The sugar mills are generally located near producing areas. Because firstly, the sugar deteriorates if it is not quickly processed and secondly, sugar accounts for only between 10 to 20 per cent of the bulky sugarcane and thus it would be prohibitively expensive to transport cane over long distances in its original form.

In the mills the cane is crushed, then boiled with lime to form crystallise sugar. By-products of the crushing process also have important uses.

Molasses is used to make rum and industrial alcohol, while Bagasse, the cane residue, can be used as a fuel for the mills, as cattle fodder as well as a source of fiber in the paper and synthetic textile industries.

Uses of sugarcane:

Sugarcane is mainly an industrial crop as the cane is supplied to sugar industries for production of sugar and alcohol. Besides sugar and alcohol bagasse, the crushed cane residue can be more beneficially used for manufacturing paper instead of using it as fuel in the mills. It is also an efficient substitute for petroleum products and a host of other chemical products.

A part of it is also used as fodder. Sugarcane accounts for the largest value of production and holds an enviable position among all the commercial crops in India. Obviously, it is the first choice of the farmers, wherever geographical conditions favour its growth.

Molasses, a by-product is used in distilleries for the manufacture of ethyl alcohol, butyl alcohol, citric acid etc. Rum is the best potable spirit made from molasses. Molasses, also, is used as an additive to feeds for livestock.


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