The word "Saccharum" has been derived from the "Sanskrit" word "Sankara", and the earliest reference about sugarcane has been made in "Veda" written sometime between 3000 and 7000 years back. When Alexander, the great invaded India, his scribes recorded that the inhabitants "Chewed a marvelous seed, which produced a kind of honey without any help from bees". The Arabs spread out the cultivation of sugarcane in the Mediterranean region in the 13th century. Less than 200 years later, Columbus on his voyage took a few species of sugarcane to Sant Domingo from where it spread into the tropical and subtropical region of America. At present it is being cultivated in about 24 countries of the world, and is spread widely between 30° North and 15° South latitudes in the tropical and subtropical region of Asia, Africa, America and Oceania.

India is the home land of Saccharum barberi, the indigenous North Indian Sugarcane where as polynes; an Insland is the home land of Saccharum officinarum, the tropical cultivated ones.

Sugarcane is the most important sugar crop of the world's production of sugar, approximately 60 per cent of sugar comes from sugarcane.
Sugarcane, in India, is the main cash sugar crop and ranks first in total area and production of sugarcane among the cane growing countries of the world. Due to large stretch of the latitude and variation in management and technology adopted by the cane growers, the average yield per hectare of sugarcane in India is relatively low as compared to world average yield per hectare. But it is quite comparable with some countries like Brazil's average yield which denotes comparable area under sugarcane and has almost similar range of climate. The yield and quality of sugarcane comparable to Hawaii have been harvested in Maharastra.

Both acreage and production of sugarcane in India increased to record levels in 1995-96. The area under sugarcane increased by 2.74 per cent from 3.28 million hectare in 1994-95 to 3.37 million hectare in 1995-95 whereas the increase of production of sugarcane was marked by 4 per cent from 273.0 million tonnes to 283.0 million tonnes during the corresponding period. The earlier highest level of acreage of sugarcane was 3.36 million hectare and production of sugarcane was 264.6 million tonnes in 1988-89 over 1987-88 being 2.95 million hectare and 176.7 million tonnes respectively. The annual average increase in production of sugarcane during the first four years of eight plan worked out to 4.7 per cent in the country as a whole while other soc...
important cane growing states recorded more increase in production.

The yield of sugarcane per hectare was observed marginally higher in 1995-96 being 84.0 tonnes as compared to 83.00 tonnes in 1994-95. This was mainly on account of higher productivity per hectare recorded in Andhra Pradesh, Bihar, Gujrat, Harayana, Punjab and Tamil Nadu. In totality, the area, production and average yield of sugarcane have shown an increase of 22.25, 38.23 and 21.31 per cent from 2.62 million hectare, 126.37 million tonnes and 48 tonnes in 1970-71 to 3.37 million hectare, 283.0 million tonnes and 84 tonnes in 1995-96 respectively.

The sugar industry ranks second amongst the major agro-industries. The number of sugar factories went up from 138 in 1950-51 to 435 at a beginning of 31 Jan. 1995 located throughout the length and breadth of the country. Measured in terms of aggregate assets, the sugar industry has a total investment of over 120 crores and its annual product value exclusive of excise duty is observed to be over 1400 crores. About 3.30 million cultivators are engaged in growing sugarcane who receive annually about 881 crores for cane supplied by them. The working force employed directly by this industry which

1. Article Published, Pratibhita Darpan Shakti Arthvastha 1970
2. Article Published, Pratibhita Darpan / Sep 96 1955

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include sizeable core of technical staff of highly trained engineers and chemists is of the order of about 4.4 lakh persons. The annual wage bill of the sugar industry is observed to be about 165 crores. Its contribution to the exchequer of the central and State Government by way of excise duty, purchase tax and other levies is estimated about 330 crores annually.

As regards the production of sugar is concerned it has been worked out that the production of sugar in the country increased from 11.34 lakh tonnes in 1950-51 to 70.03 lakh tonnes in 1985-86 to 144.91 lakh tonnes in 1994-95 and record production of 164.29 lakh tonnes in 1995-96.

A notable feature of the development of sugar industry in the country after independence was its remarkable expansion in the cooperative sector. Out of 459 sugar factories installed in 31 Jan. 1995, 186 were in the cooperative sector.

As regards the utilization of sugarcane, besides seed requirement, sugarcane is also used as raw material for manufacture of sugar (30-33 per cent), Gur (55-60 percent) and Khandsari sugar (6-7 per cent) in India. A small percentage of sugarcane is also used for chemical purposes.
Sugar industry's by products like molasses are being utilized for the production of potable and non-potable alcohol and acetic acids. No other significant development in the utilization of sugar industry by-products has been evolved so far. Recently technical development has been in process for preparing high power alcohol from molasses or directly from sugarcane juice. Besides bagasse is gradually being diverted for production of paper pulp. Traditional uses of sugarcane tops are local known as "Agoler" as fodder, stubbles and roots as organic manures and leaf trash as fuel and compost are well known.

It is well noted fact that the prices of sugar, Khandaari and gur have registered a very sharp increase during recent years by about 30.41 percent increase during the period from March to end of Sept. 1995-96 as compared to only 21.89 percent increase during corresponding period of 1994-95. The price rise of this magnitude was caused mainly by decline in sugar production, rising demand of sugar and reported, smuggling in the neighbouring areas where higher prices were ruling. The sugar production declined from 9.1 million in 1993-94 (sugar year) to 8.7 million tonnes during 1994-95. Data in respect of per capital availability of sugar has gone up by about 250 percent from 5.0 Kg. in 1955-56 to 12.2 Kg.
in 1994-95, in order to maintain per capita availability of sugar at this level, India imported sugar to the order of 4.0 lakh tonnes of sugar during 1994-95, while during 1995-96, India exported sugar to the order of 8.87 lakh tonnes.

According to the latest information available for the year 1995-96, annual total production of sugar cane in Uttar Pradesh was 1400.00 lakh metric tonnes from an area of 23.40 lakh hectares which accounted for 54.48 and 45.55 per cent to total production and area of sugarcane in India. The number of sugar factories in Uttar Pradesh during 1995-96 were 112 as against 435 in the country representing about 36 per cent to total number of sugar factories in India.

It would, thus, be seen from the above facts that Uttar Pradesh occupies the most strategic position in respect of its area, production of sugarcane and sugar in the country and has a pride in the sugar economy. But now Uttar Pradesh is seriously being challenged by other states like Maharashtra, having at 107, Andhra Pradesh 34, and Tamil Nadu 25 sugar factories which formerly had no position in the sugar map of India. With the provision of irrigation facilities now being made available along with subtropical climate and long maturing period for the optimum growth of sugar cane, southern
states are producing higher production per unit of area. The average yield per hectare of sugarcane was recorded at 92.49 tonnes in Tamil Nadu, 68.71 tonnes in Andhra Pradesh, 104.75 tonnes in Kerala and 45.62 tonnes in Maharashtra as against 46.34 tonnes in Uttar Pradesh during 1989-90. So far as recovery of sugar is concerned, Mysore had 9.56 per cent, Andhra Pradesh 9.07 percent, Maharashtra 10.95 per cent and Uttar Pradesh 9.63 per cent.

Deoria is one of the largest sugarcane producing districts of eastern-Uttar Pradesh, produced 514.7 thousand tonnes of sugarcane from 92.399 thousand hectare of area representing 4.93 and 5.04 per cent to total production and area of sugarcane in Uttar Pradesh during 1994-95. The number of sugar factories in district Deoria are highest being 14 in Uttar Pradesh.

Thus, it would not be out of place to mention that district Deoria occupies a place of pride in the production of sugar cane and sugar in Uttar Pradesh and stands first in Eastern Uttar Pradesh. Sugarcane is the main cash crop of study area (Deoria) and greatly influences the economy of the farmers. Other important sugarcane growing districts of eastern Uttar Pradesh are Gorakhpur, Lakhimpur Kheri, Basti and Azamgarh.
The difference in the productivity per unit of area and sugar recovery which is the lowest in Uttar Pradesh calls for serious consideration on the part of Uttar Pradesh state to think in terms of linking yield, sugar recovery and prices to the economic welfare of the farming community as well as for sugar industry. The claim on the part of public leaders to raise the price of sugarcane to Rs. 75 per quintal or even more requires a scientific economic analysis for the correct economic basis for price fixing vis-a-vis the conditions obtaining in other part of the country.

As such, the implications of the problem are often reaching importance in analysing the economics of sugarcane cultivation and its business expansion in the form of Gur and sugar. It is well known fact that the price of sugarcane does not vary as widely from year to year as in case of other commodities and sugarcane products because the price of sugarcane is publically supported and statutory fixed by the Government. But the sugarcane growers and manufacturers of sugar products often come into conflicts regarding the justification of the scientific basis of pricing mechanism of the Government. Therefore, it also calls for the determination of the relationship with other crop enterprises in terms of complementarity, supplementarity and competitive nature to such
other for the fixed land area and other resources. It is a general fact that the relationship between cost of production of sugarcane and price fixed by the Government is certainly concerned with a price policy that aims at providing as much of profit to the sugarcane growers as would support saving and investment in the farm sector and at the same time saving as an incentive to produce more through the use of better methods and more efficient combination of production oriented and traditional inputs in order to become self sufficient for internal consumption of the country but also make the country to export it to foreign destination in order to earn more foreign exchange required for repaid economic growth of the country. At the same time, the Government should be aware that the price of the sugarcane should not be too high as to adversely effect the sugar industry and abruptly disrupt the development of an optimum crippling pattern required for general economic welfare of the country.

An increase in the sugarcane productivity is the must for enhancement of its production and expansion of sugarcane industry which in turn, calls for an emphasis on cost reducing technology for maximisation of return. But it is universal truth that maximum profits are not always obtained by higher outputs per hectare.
fact, profits are determined by price, output and production relationship. Hence, the problem needs a careful coverage and clear exposition of various factors of costs, structural, investments and level of outputs and cropping pattern.

Hither, to, the economic evaluation and analysis of the costs and returns on sugarcane have been costly in the direction of the determination of the magnitude of the inputs and outputs on its cultivation. Relationship with other crops were not properly dealt with, with the result that data gap was so divergent that clear understandings of the implications of a sound sugarcane price policy could not be presented in its proper prospective. It is therefore, necessary that an overall economic picture of the problem and objectives of present study should also include an evaluation of the returns which might be expected on the principle of opportunity cost.

Further, the price of sugarcane should not be left fixed on the basis of its average cost of production, bulk line cost of production, opportunity cost principle at microlevel and moving average, toward price and econometric model basis of price fixation at a macro-level, but at the same time, other factors in the supply of sugarcane and its products in the market, prices of sugarcane products and parity in the levy price and issue price of sugar, wholesale and
retailer prices of sugarcane products should also be taken into consideration in the fixation of sugarcane price policy, as these factors and their relationship do affect the price of sugarcane. Therefore, it is utmost necessary to determine the relationship between the prices of sugarcane and its arrivals in the form of gur in the market, relationship between the prices of sugarcane products and the growth rate of levy price, issue price, wholesale and retail price of sugarcane products in order to frame a sound price policy not only for sugarcane but also its products which would be well remunerative to the sugarcane growers as well as would be within the pockets of its consumers.

It is also required to have an econometric study of various resource use taken in the production of sugarcane in order to estimate the parameters of the production function to determine the marginal value productivity optimum levels of various input factors for maximization of sugarcane output under capital constraints. In this way, evidence on the efficiency of the use of resources is to be obtained for policy decisions.

In order to approach the present study entitled "Economics of Sugarcane production in Eastern U.P. With Special Reference Deoria" in a scientific way,
objectives of the study have been formulated as under:

1. To study the trend of area, production and productivity of sugarcane in India, U.P. with special reference to Deoria.

2. To analyse the farmer's resources used in the production of sugarcane under study.

3. To examine the relation between cost and return as well as between cost and price of sugarcane and its products on sample farms.

4. To work out the marginal value productivity and economic optimum levels of various inputs used in sugarcane production for the study area and

5. To examine the problem and future prospects of sugarcane cultivation in the study area.

**HYPOTHESIS:**

In order to guide the study with the above mentioned objectives of the present study, following hypotheses have been developed.

1. The growth rates of area, production and productivity of sugarcane, have increased during the last 29 years from 1966-67 to 1994-95.
2. Sugarcane is competitive to wheat, maize, paddy, and potato and crops complementary to pea.

3. The proportion of the output and net return for sugarcane to total output and net return of the form (all crops) is greater than the proportion of the sugarcane area to the total cropped area of the form.

4. The marginal value productivity of manures fertilizer and irrigation are greater than that of the respective prices in sugarcane planted and ratoon.