

**GEOGRAPHY OF SUGAR CANE CULTIVATION
IN
EASTERN HARYANA**

Volume I

by

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INTRODUCTION

Perspective of Sugar Cane Cultivation

Out of every 10 hectares under cultivation, 7.5 hectares are under foodgrain crops and only 2.5 are under commercial crops. Thus our agrarian economy is mostly of subsistence nature. Sugar cane is an important commercial crop in India. In 1973-74 area under cane cultivation was 2,722 thousand hectares, more than half of this was in Uttar Pradesh (50.4 per cent) alone and Haryana ranked fourth occupying only 5.5 per cent of the total national area under sugar cane. During 1973-74, sugar cane ranked second among the commercial crops and ninth within the state cropping pattern.

Haryana In Perspective of Other States

Sugar cane is tropical and sub-tropical crop and it has been growing in India since ancient times. It is a demanding perennial crop calling for heavy loam, considerable moisture and absence of frost and making a heavy demand on labour. It's annual water requirement (consumptive use) is 125cm to 150cm. The agroclimatic and socio-economic conditions are not in favour of sugar cane cultivation in those parts of India which are, otherwise situated in tropical latitudes having maritime location outside Bihar and eastern parts of Uttar Pradesh, sugar cane is raised only with the help of irrigation. Irrigation is much easier and cheaper in Yamuna Sutlej and Upper Gangetic Plain where sugar cane culture is mostly irrigated.

Sugar cane hectareage in Uttar Pradesh, Maharashtra, Andhra Pradesh, Haryana, Tamil Nadu, Bihar, Punjab, Mysore, Madhya Pradesh and Orissa, more or less for the period 1954-55 to 1973-74, has been portrayed in Figure 3 highlighting the fluctuations in the area under sugar cane. The dips are due to climatic and economic constraints. In the case of northern states, Punjab, Haryana and Uttar Pradesh in particular fluctuations are more as compared to southern states. To reckon the actual trend in sugar cane hectareage least squares method is used in which the equations are as under:

$$Y = a + bx$$

with method of least square our normal equations are

$$\sum_{i=1}^n Y_i = na + b \sum_{i=1}^n x_i$$

$$\sum_{i=1}^n x_i Y_i = a \sum_{i=1}^n x_i + b \sum_{i=1}^n x_i^2$$

The equation for a straight line involves two constraints, viz. 'a' and 'b'. The values of 'a' and 'b' are determined from the numerical data on area under sugar cane in various states. Where 'a' represents time (years) and 'b' the area under cane cultivation. In the case of Haryana the trend line drawn with the help of the equation

$$Y = a + bx, \quad Y = 76.98 + 4.15x$$

represents a positive trend(Figure 4) the trend is positive also in the case of Uttar Pradesh, Maharashtra, Tamil Nadu and Andhra Pradesh. But in the case of Punjab, Bihar, Madhya Pradesh and Orissa the trend is negative.

Table I(a) gives the comparative picture of sugar cane hectareage and yield per unit of area in India.

Table I(a)
Area and Yield of Sugar Cane

A = Area in Thousand hectares

Y = Yield per hectare in
Kilograms of gur(raw sugar)

Sr.No. State	1960-61		1965-66		1973-74	
	A	Y	A	Y	A	Y
1. Andhra Pradesh	91.4	8889	145.3	8381	153.5	8747
2. Bihar	185.4	3795	165.7	4138	148.0	3484
3. Haryana	127.4	3846	143.7	4698	150.0	3973
4. Maharashtra	155.4	7436	158.6	7608	161.1	8601
5. Punjab	141.6	3767	121.7	3651	112.1	5330
6. Tamil Nadu	81.1	8453	97.7	8949	149.1	9205
7. Uttar Pradesh	1328.9	4102	1389.2	4049	1472.7	4151

Source: Directorate of Economics and Statistics.

Table I(a) highlights that Uttar Pradesh ranked first in sugar cane cultivation, producing more than 50 per cent of that grown in India. Sugar cane husbandry is largely concentrated in the western Uttar Pradesh. Middle Ganges, upper Ganges and Sutlej Yamuna Plains are the outstanding areas falling outside the tropics, where intensity of sugar cane cultivation is very high and moderate.

Sugar cane is a kharif season crop, but its harvesting extends upto the end of rabi season. As such another crop during the year can not be grown. Even then, being of a very high value crop, it has become very popular in the state of Haryana. Area under this crop has jumped from 127.4 thousand hectares in 1960-61 to 150.0 thousand hectares in 1973-74, which makes an increase of 18.1 per cent in the total area under sugar cane cultivation. The yield is pitifully low, through out India, average about 515 Kgs.(1973-74) of raw sugar (gur) per hectare, which is just one fourth of Java and Hawaii, where extremely high yields are obtained as a result of application of fertilizers, irrigation, careful selection of seed and skilful cultivation. The yield is comparatively high, in southern states (Andhra Pradesh, Maharashtra and Tamil Nadu) because of favourable agronomic and climatic conditions. During recent years technological innovations have promoted the cultivation

and yield of sugar cane in India.

Changing Agriculture of Haryana

In a short span of time, Haryana has come to occupy a place of pride in the field of agriculture. The net work of relationships that provides the context within which farmers make decisions has however changed significantly since the beginning of fifties. This might be one of the reasons that today Haryana has become one of the most developed agricultural region of the nation. Since 1967 increased Government role and state supported research and publicity in agricultural affairs have brought about significant changes in the cropping pattern and agricultural production. But still the choice of farming system is governed primarily by the economic circumstances and the personal preference and the skill of the farmers. The first ever planned effort to develop Haryana's agriculture began in 1951, the year when first five Year Plan was launched. Thereafter, efforts were made to develop irrigational facilities in some parts, such as Nall area of Hisar district and Khaddar-Bhangar area of Karnal district and Jagadhri tehsil of Ambala.

Of all the agricultural inputs, water is the most important factor which determines the crop growth and the productivity. In 1966, when Haryana came into existence,

12.93 lakh hectares were irrigated which was 37.8 per cent of net area sown. After 1967, attention had been concentrated on the mobilisation of surface and ground water resources and their judicious use in the most commercial manner. Only 25311 tube-wells and pumping sets were existing in the state at the time of her inception but their number rose to 1,49,160 in 1972-73. The net area irrigated by tube-wells, pumping sets and wells rose from 289 thousand hectares to 672 thousand hectares in 1972-73. The major canal system namely, the Bhakra, the western Yamuna Canal, and other small irrigation schemes, commanded an area of 26.17 lakh hectares. In fact, accelerated by increasing intensity of irrigation, the competition from superior grains for land occupancy has become a major instrument of change.

Since nearly 81.03 per cent of the total area (1971-72) of the state is under plough, there is very little scope to bring more area under any crop to increase its production, therefore all efforts need to be diverted towards increasing productivity per unit of area with the help of enhanced supplies of agricultural water, multiple cropping and application of the latest farm technology. The trend in the increase of production of some crops is clear from table I(b).

Table I(b)

Production of Principal Crops in Haryana

P = Production in thousand tonnes

I = Index, 100= Index for 1950-51

Sr.No. Year	Foodgrains		Oilseeds		Cotton		Sugar cane	
	P	I	P	I	P	I	P	I
1. 1950-51	1247	100	36	100	55	100	184	100
2. 1965-66	1985	159.1	83	230.5	292	530.7	717	389.6
3. 1968-69	2784	223.2	43	119.4	337	512.7	669	363.5
4. 1973-74	3838	307.7	61	1694	450	818.1	596	333.9

Source: Statistical Abstracts of Haryana.

Crop production data given in Table I(b) clearly indicate that there has been steady and progressive increase in the overall cotton and sugar cane production, since 1950-51. This increase can be attributed to the increase in area under cultivation and irrigation facilities and other inputs. This clearly reflects a change in the attitude of the farmers, who, being extremely receptive to new techniques, have taken to scientific methods of crop cultivation and also exploitation of the new found opportunities to their fullest advantage.

Perspectives of Sugar cane Cultivation In Haryana

A study of agriculture in the geographical frame-work,

within which traditionally low productivity agriculture is to be transformed into high productivity modern agriculture, is of great importance to agricultural geographer. An absolute criterion can not be laid down about the content and chronological order of such transformations, because agricultural enterprises vary so vastly from area to area in terms of physical and socio-economic conditions, within the borders of the state. Albeit about 85 per cent of the cropped area in Haryana is under food grains, the agriculture in the state can not be placed, under subsistence agriculture because of fair proportion of foodgrains grown in the state is marketed and the farmers earn a considerable money. Thus, Haryana's agriculture though much food oriented is not subsistence farming at all. As such it becomes now obvious that cropping pattern in Haryana is largely influenced by such factors as rainfall and irrigation facility.

Fast developing, agriculturally dominating state of Haryana has come out from traditional agriculture to the second stage of technologically dynamic agriculture: with low capital intensity. The important feature of this stage is to increase the productivity of existing land labour-capital inputs. Small capital additions are made in the shape of improved seeds, fertilizers and pesticides.

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