

**ROLE OF SUGARCANE CULTIVATION IN DEFINING THE SOCIO-ECONOMIC LIVELIHOODS OF FARMERS IN ROHILKHAND REGION, WESTERN UTTAR PRADESH**

**Dr. Naresh Kumar**

*Associate Professor*

*Department of Geography*

*Meerut College, Meerut*

*Email: nareshkakran@gmail.com*

**Gaurav Arya**

*Research Scholar*

*Department of Geography*

*Meerut College, Meerut*

*Email: swabhimanigaurav1997@gmail.com*

**Abstract**

*India is a tropical monsoon country and the climatic condition of India is most favorable for the sugarcane cultivation and therefore it is cultivated far and wide in the country. India is the second largest producer of sugarcane after Brazil which signifies that sugarcane is an important commercial crop in India. Sugarcane is the only raw material for all major sweeteners in the country. Sugarcane is a versatile crop being a rich source of food, fiber, fuel, fodder and chemicals. By-products of sugarcane are also playing an important role in the nation's economy.*

**Keywords**

*Socio-Economic livelihoods, Regional disparities, Regional politics, Sugar based industries, Socio-Economic Gap*

Reference to this paper should be made as follows:

**Received: 11.05.2022**

**Approved: 20.06.2022**

**Dr. Naresh Kumar,  
Gaurav Arya,**

*ROLE OF SUGARCANE  
CULTIVATION IN DEFINING THE  
SOCIO-ECONOMIC LIVELIHOODS  
OF FARMERS IN ROHILKHAND  
REGION, WESTERN UTTAR  
PRADESH*

*RJPSSs 2022, Vol. XLVIII,  
No. 1, pp.01-15  
Article No.1*

Similarity Check: 18%

**Online available at:**

<http://rjpss.anubooks.com>

**DOI:** <https://doi.org/10.31995/rjpss.2022v48i01.01>

## **Introduction**

Sugarcane plays a vital role in the overall socio-economic development of farming communities. For the generation of employment and livelihood in India, the production of Sugarcane and its processing are considered to be the major source. It helps in the engagement of roughly 50 million farmers and 3-5 lakhs skilled and unskilled workers in the cultivation of sugarcane and sugar industries and their allied industries. From Punjab to Kanyakumari the crop of sugarcane is cultivated in India. However, Uttar Pradesh, Maharashtra, Tamilnadu, and Gujarat are the major producers of sugarcane in India. About 18 percent of the world's sugarcane production is accounted for in India.

The western and the north-western part of Uttar Pradesh is likely to be the home of sugarcane economics in India. Sugarcane cultivation is highly important in this region and sugarcane farmers have created a special niche among the farmers' community of this region. They are famously and proudly called themselves Ganna Kisan. The Jat, Gurjar, Rajput and Yadav community of this region is highly oriented toward sugarcane cultivation. The regional politics of the entire Western Uttar Pradesh is governed by this single crop.

There are various problems as well faced by the cane farmers such as the problem of low yield, low rate of recovery, high cost of cultivation, uneven production trend, old machinery, etc. the unsatisfactory pricing policies of the Govt for the sugarcane farmers also aggravate the problem.

The biggest problem of the Indian sugar industry is that it is supposed to be one of the most politically sensitive commodities., as examined by Chandrashila and others. There is an independent ministry and commission for sugarcane in the state government named the Ministry of sugarcane and sugarcane commission. There is no doubt that Sugarcane cultivation determines the socio-economic background of farmers in most of the regions of north India. It is the sugarcane politics that have given the Chief Minister to the state as well as the Prime Minister also to this nation. Each political party has to mention the future programs and policies related to sugarcane cultivation and sugar industries in their election Manifesto. In each Gram panchayat, there is a special administrative post of Sugarcane observer for the regular monitoring of this sensitive crop.

## **Study Area**

Rohilkhand region lies in the northwestern part of the Uttar Pradesh province of India. It is mainly located around the Bareilly and Moradabad division part of the upper Ganges Plains. the region is named after the Rohilla tribe who are Pashtun and migrated from central Asia. Rohilkhand region lies on the alluvial plains of the

upper Ganges and has an area of about 25,000 km<sup>2</sup> in and around the Bareilly and Moradabad divisions.

Rohilkhand region is surrounded by the Ganga Doab to the south and west side and Uttarakhand to the north, Nepal to the east, and the Awadh region to the southeast. Rohilkhand region includes the districts like Amroha, Moradabad, Rampur, Sambhal Rampur, Badaun, Bareilly, Shahjahanpur and Pilibhit.

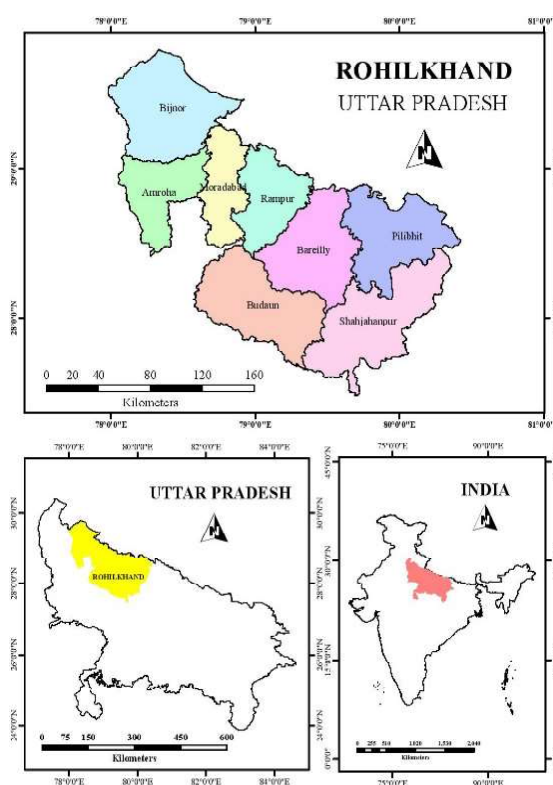
Rohilkhand plain has a sub-humid climatic condition with the vast monsoonal regime of the Great plains. As we know that it is the Climate that governs the distribution and types of natural vegetation, flora and fauna, soils and of course activities of man.

Rohilkhand plain has a monsoonal climate with a rhythm of seasonal changes. That effectively controls the whole agricultural activity and arrangement of the cropping seasons.

This region has the well-integrated drainage system of the Ganga although the Ramganga collects most of the drainage of the Rohilkhand plain.

The Rohilkhand region is potentially quite rich in groundwater resources, both free and confined. The confined aquifer generally strikes between 60- and 90-meters depth, while the temporary water table depth is less than 35 meters with wide spatial and seasonal variations.

This region's economy is dominated by agriculture which together with the allied activities forms the most important source of employment and revenue. The Rohilkhand region is one of the diversified and most veritable regions of the country as far as cropping pattern is concerned.



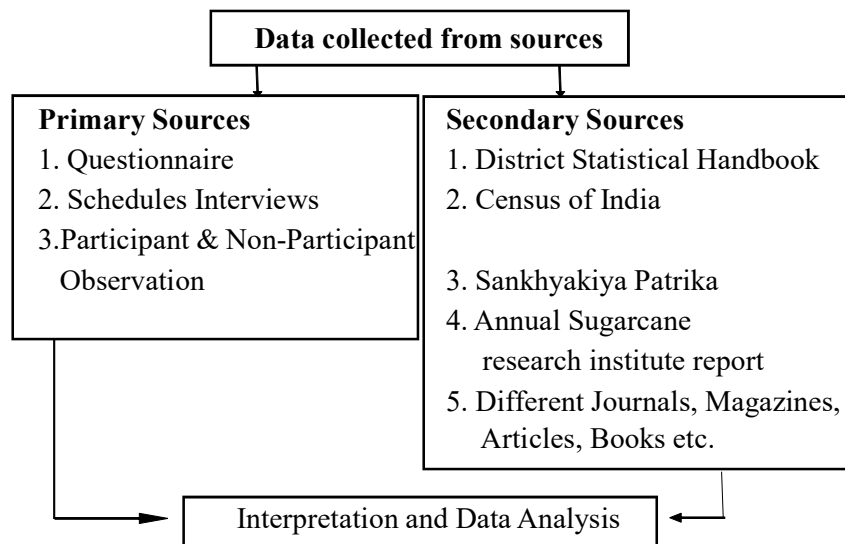
(Source: Self)

### Data Sets and Methodology

This research paper is based on both primary as well as secondary data. This research study focuses on primary data collected from field surveys. Data is collected from the study area based on a structured questionnaire, focussed group discussion and interviews with the various stakeholders. Primary data tell us the real picture of the socio-economic livelihoods of the farmers. Their standard of living, property and assets, their rituals and norms and their direct participation in the politics.

Although this study is also focused on secondary sources of data. The data were collected from; the District Statistical Handbook, Census of India, Sankhyakiya Patrika, Different Journals, Newspaper cuttings Magazines, Articles, Books, etc. The relevant data available on different websites were also being used in this study.

To show the actual trends and patterns of the area under sugarcane cultivation simple percentage method and various pictorial diagrams were used. The Arc GIS software is being used for the preparation of relevant maps for the study. The study adopted a purposive sampling technique as the researcher intended to interview the participants with the intimate knowledge of socio-economic standards of farmers' participation in selected villages in the Rohilkhand region. So, this research study is a mixture of both primary and secondary sources of data.



The period of this research is from 2000 to 2020 (20 years). In this decade, a lot of mechanization processes and modern techniques were

introduced in the agriculture sector and several policies were launched by central and state governments. We also examine the status of central govt policy “Doubling the income of farmers by 2022”.

### Results and Discussion

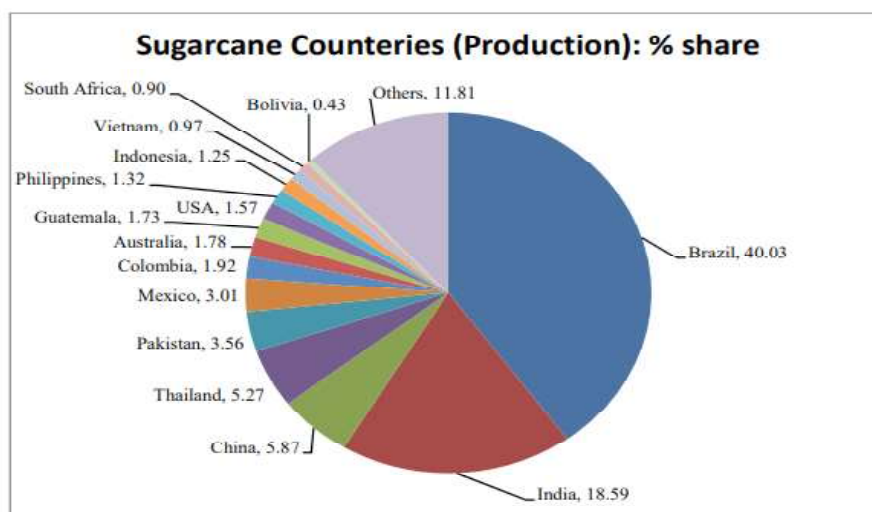
#### Sugarcane Scenario: Global level

In more than 115 countries with an average area of 26.54 million hectares, the crop of sugarcane is cultivated. It has a total production of 1878.79 million tonnes and productivity of 71 tonnes/ ha. (FAO, 2019). Countries that are major white sugar producers are such as Brazil, India, China, Thailand, Pakistan, Mexico, Colombia and Australia. Brazil is considered to be the largest sugarcane-growing country followed by India & China. These are the three countries that contributed about 62% area and 64% production of sugarcane in the world. The list of major 15 countries in terms of area wise & production wise is given in the table.

**Table 1: Major 15 Sugarcane Countries: Area and Production wise**

Country	Areas hare (%)	Country	Production share (%)
Brazil	38.41	Brazil	40.03
India	18.18	India	18.59
China	5.62	China	5.87
Thailand	5.20	Thailand	5.27
Pakistan	4.31	Pakistan	3.56
Mexico	2.91	Mexico	3.01
Indonesia	1.68	Colombia	1.92
Philippines	1.61	Australia	1.78
Colombia	1.52	Guatemala	1.73
Australia	1.58	USA	1.57
USA	1.36	Philippines	1.32
Vietnam	1.05	Indonesia	1.25
Guatemala	1.01	Vietnam	0.97
SouthAfrica	1.00	SouthAfrica	0.90
Bolivia	0.58	Bolivia	0.43
Others	13.97	Others	11.81

**Source:** Report by Directorate of Sugarcane development



**Source:** Report by Directorate of Sugarcane development

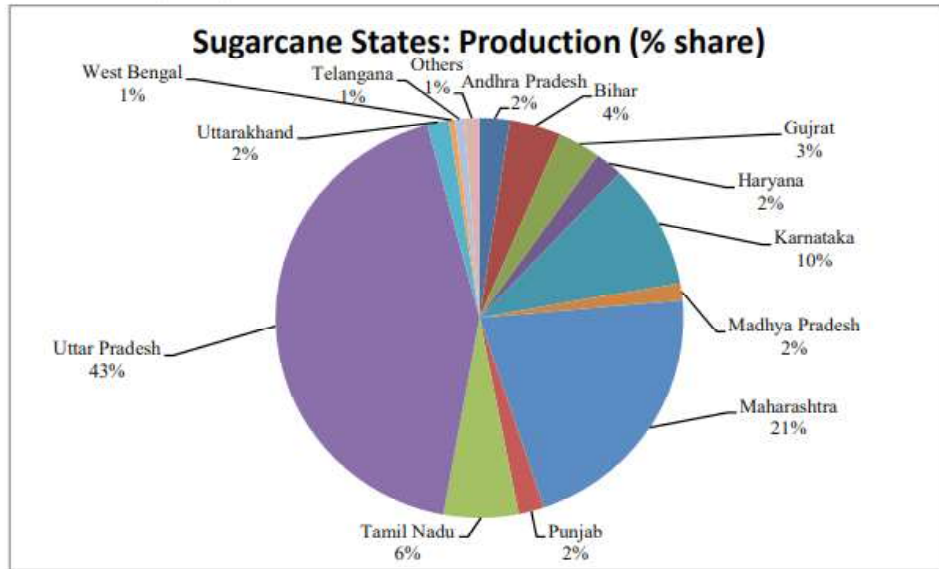
#### National level

The Sugarcane scenario which was in 1930-31 is different compared to today's scenario. We found that area has been increased 5 folds, production by 9 folds and productivity by 2.5 folds. The main reason attributed to the development of sugarcane cultivation is the improved varieties, production & protection technologies and the increased area in irrigation. 2014-15 was the year when the maximum area was recorded at 5.07 million ha, whereas production & yield was recorded during 2018-19 at 405.42 million tonnes and 80.11 tonnes/ ha respectively.

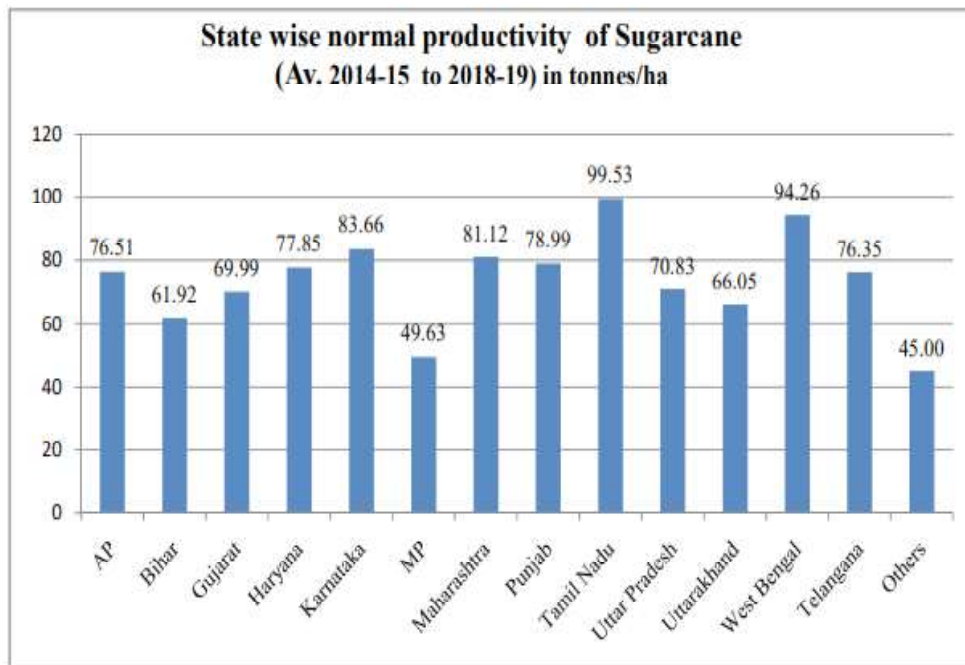
**Table 2: Major 10 Sugarcane States: Area and Production wise**

State	Area share (%)	State	Production share (%)
Uttar Pradesh	2224.00	Uttar Pradesh	179714.77
Maharashtra	1162.80	Maharashtra	89768.16
Karnataka	471.20	Karnataka	42408.00
Bihar	225.57	Bihar	20116.29
Tamilnadu	166.61	Tamilnadu	17140.23
Gujarat	154.77	Gujarat	11326.38
Madhya Pradesh	108.70	Haryana	8505.01
Andhra Pradesh	102.0	Andhra Pradesh	8094.62
Punjab	95.0	Punjab	7773.66
Uttarakhand	91.0	Uttarakhand	6329.32

**Source:** Report by Directorate of Sugarcane development, GOI,2020



Source: Report by Directorate of Sugarcane development, GOI,2020



Source: Report by Directorate of Sugarcane development, GOI,2020

**State level: Uttar Pradesh**

**Table 3: Major 15 Sugarcane districts of Uttar Pradesh: Area and Production wise**

Districts	Area share (%)	Country	Production share (%)
Bijnor	204482	Bijnor	17575637
Muzaffarnagar	176683	Muzaffarnagar	15266825
Saharanpur	137598	Meerut	12232050
Meerut	131936	Saharanpur	10659442
Bareilly	97049	Bareilly	7253442
Baghpat	74227	Baghpat	6431027
Amroha	73607	Amroha	6201537
Pilibhit	70522	Pilibhit	5456146
Kushinagar	70215	Kushinagar	5450088
Bulandshahr	52806	Bulandshahr	4733107
Moradabad	50744	Moradabad	3875827
Basti	40546	Shahjahanpur	3188234
Shahjahanpur	39735	Basti	2804648
Rampur	27642	Rampur	2186482
Badaun	26891	Badaun	2036456
Ghaziabad	23136	Ghaziabad	1971372

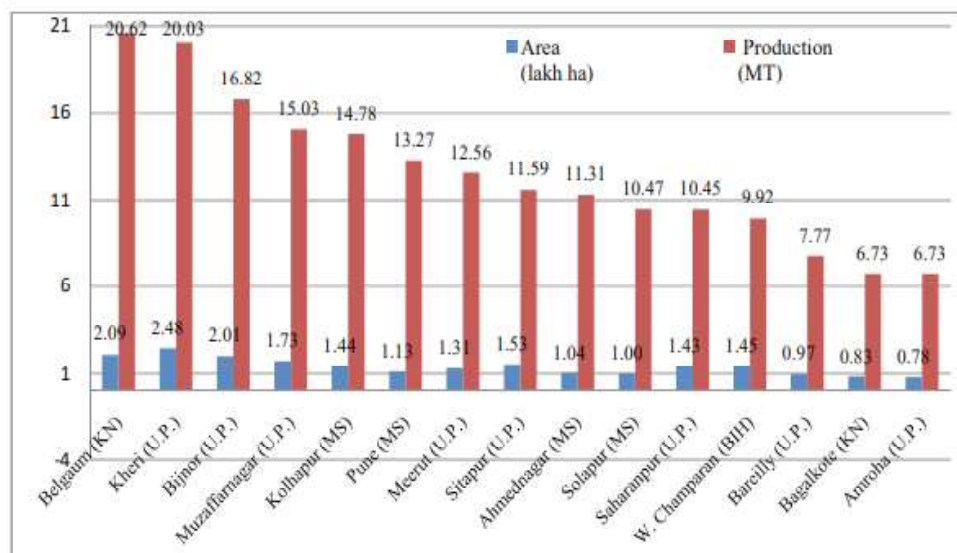
Source: Report by Directorate of Sugarcane development, GOI,2020

**Table 4: Fifteen leading districts under sugarcane cultivation in India**

S.N.	State	District	Area (Lakh/ha)	% share To India	Production (Lakh/Tones)	% share to India	Yield (Tones/ha)	YI
1	KN	Belgaum	2.09	4.41	206.20	5.43	99	124
2	U.P.	Kheri	2.48	5.24	200.26	5.27	81	101
3	U.P.	Bijnor	2.01	4.24	168.15	4.43	83	104
4	U.P.	Muzaffarnagar	1.73	3.65	150.28	3.96	87	109
5	MS	Kolhapur	1.44	3.04	147.79	3.89	103	129
6	MS	Pune	1.13	2.39	132.70	3.49	117	146
7	U.P.	Meerut	1.31	2.77	125.56	3.31	95	119
8	U.P.	Sitapur	1.53	3.23	115.89	3.05	75	94
9	MS	Ahmednagar	1.04	2.20	113.09	2.98	108	135
10	MS	Solapur	1.00	2.11	104.68	2.76	104	130
11	U.P.	Saharanpur	1.43	3.02	104.50	2.75	73	91
12	Bihar	W.Champaran	1.45	3.06	99.21	2.61	68	85
13	U.P.	Bareilly	0.97	2.05	77.66	2.04	80	100
14	KN	Bagalkote	0.83	1.75	67.30	1.77	81	101
15	U.P.	Amroha	0.78	1.65	67.29	1.77	85	106
		<b>India</b>	<b>47.37</b>		<b>3799.00</b>		<b>80</b>	

Source: Report by Directorate of Sugarcane development, GOI,2020





Source: Report by Directorate of Sugarcane development, GOI,2020

Regional level: Rohilkhand region

Table 5: Major 15 Sugarcane states of Uttar Pradesh: Area and Production wise

Districts	Area share (%)	Country	Production share (%)
Bijnor	204482	Bijnor	17575637
Bareilly	97049	Bareilly	7253442
Amroha	73607	Amroha	6201537
Pilibhit	70522	Pilibhit	5456164
Moradabad	50744	Moradabad	3875827
Shahjahanpur	39735	Shahjahanpur	3188234
Rampur	27642	Rampur	2186482
Badaun	26801	Badaun	1947661

Source: Report by Directorate of Sugarcane development, GOI,2020

### Factors that contribute to the enhancement of Socio – the Economic Status of Sugarcane farmers

#### Mechanization of Sugarcane

There is no doubt as time passes new technologies are being used in each sector. The same does with the agriculture sector and especially with the sugarcane department. Mechanization includes such parameters as Timeliness of operation,

Reduced cost of unit operations, reduced human drudgery, Increasing productivity of other critical inputs such as labor, fertilizer and insecticide, etc.

In past, approximately 400 man-days were needed per hectare in sugarcane cultivation. Most of the cultural operations involved in sugarcane cultivation are performed with traditional tools and equipment which results in a high cost of cultivation in terms of finance as well as the labor force. Mechanization will help in accomplishing cultural operations on time and precise application of critical inputs will ultimately lead to a higher level of productivity at reduced cost per unit time, area and input besides removing the human drudgery.

### **Sugarcane Economics**

In tropical and sub-tropical countries of the world, Sugarcane based Sugar industry is considered to be one of the largest and most important industries. The sugar industry in India has emerged as the leader in the Sugar world, both in respect of sugarcane as well as in sugar production. Sugarcane crop is multi usable and multi-product operation. The Sugarcane plant provides huge potential, not only as the sucrose of a very important food but as a source of energy and valuable commercial products as well from fermentation and chemical synthesis. Major industries which are based on sugarcane production are as follows:

Bagasse-based industries; Molasses-based industries, Ethanol Production, Press mud-based industries, and Sugar industries.

### **Credit Availability**

Credit plays a vital role in diversification towards cash and highly-valued crops. It promotes the use of modern inputs. The per hectare credit borrowed by different categories of farmers was inversely related to farm size. the highest amount (Rs12, 546) is borrowed by the Marginal farmers. while large farmers borrowed the lowest credit (Rs 5244). It reflects that the credit requirement of large-size farmers was less than compare of smaller farm-size categories. It has been also witnessed that the marginal and small farmers were more dependent on non-institutional agencies for credit. It can be as interpreted that large farmers were sounder financially strong than other farmer categories.

It has also been observed that about 79 percent of farmers did not have Kisan Credit Cards (KCC). Only about 21 percent of farmers were holders of KCC. It was found that the marginal farmers preferred to take medium-term credit while the other farm categories.

**Table 6: State-wise number of sugar factories in operation in India**

Sl. No.	State	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
1.	Andhra Pradesh	36	34	22	19	18	18
2.	Assam	-	-	-	-	-	-
3.	Bihar	11	11	11	11	11	11
4.	Chhattisgarh	3	3	3	3	4	4
5.	Dadra Nagar Haveli	-	-	-	1	-	-
6.	Goa	1	1	1	1	1	1
7.	Gujarat	18	19	19	21	20	17
8.	Haryana	14	14	14	14	14	14
9.	Karnataka	60	61	65	64	61	65
10.	Kerala	-	-	-	-	-	-
11.	MadhyaPradesh	12	15	15	17	16	19
12.	Maharashtra	172	159	184	180	152	186
13.	Nagaland	-	1	-	-	-	-
14.	Orissa	5	5	3	3	3	2
15.	Pondicherry	2	2	2	1	1	-
16.	Punjab	16	16	16	16	16	16
17.	Rajasthan	1	1	1	1	1	1
18.	TamilNadu	43	42	44	42	39	37
19.	Telangana	@	@	10	7	7	7
20.	Uttar Pradesh	122	119	118	117	116	119
21.	Uttarakhand	9	9	9	8	8	7
22.	WestBengal	1	-	1	1	1	1
	<b>India</b>	<b>529</b>	<b>513</b>	<b>538</b>	<b>526</b>	<b>489</b>	<b>525</b>

**Source:** Report by Directorate of Sugarcane development, GOI,2020

### **Plans and policies running for the welfare of Cane farmers in Uttar Pradesh**

Govt of India declares the Minimum Support Price or Fair and Remunerative Price (FRP) in sugarcane every year to protect the benefits of the sugarcane growers keeping in view the inflation of the inputs and other parameters. The State Government also declared State Agreed Price for Sugarcane over the FRP.

A Scheme sponsored by the Central govt which is Sustainable Development of Sugarcane Based Cropping System (SUBACS) was under implementation from 1995-1996 to 1999-2000 in 191 districts of 20 states and one union territory. The following strategies were undertaken under the scheme:

1. Transmission of improved crop production technologies through the organization of field demonstration on farmers' holdings and training of farmers including farm women and extension workers.
2. Setting up the Heat Treatment Plant for the multiplication of disease-free seed and making available healthy seed material to the farmers.
3. Encouraging the farmers to use Integrated Pest Management (IPM) Technology.
4. Introducing Tissue Culture Technique for quicker multiplication of seed material.
5. Replacement of low-yielding varieties with high-yielding varieties having biotic and abiotic resistance.
6. Plantation and harvesting of sugarcane use of improved farm implements.
7. Promoting a sense of competition among farmers for maximizing productivity.

At the present, so many other programs are running for the betterment of sugarcane-based farming systems. Like Breeder Seed Production and Distribution Program 2. Foundation Nursery Seed Production and Distribution program 3. Primary Nursery seed Distribution program 4. Field Demonstration Program 5. Agricultural Implements Distribution Program 6. Productivity award Program 7. Kisan Goshthi/ Kisan Mela Program 8. Training Program 9. Drip Irrigation Program

Horizontal & Vertical expansion, Varietal development, Reducing the cost of cane development, Promoting Micro-irrigation for effective water management, Diversification and value addition through the production of jaggery and allied products, increase of productivity in ratoon, intercropping in sugarcane are the future strategies that have to achieve for the advancement of this sugarcane-based farming system.

### **Conclusion**

There is no doubt that farmers of the Rohilkhand region or we can say the farmers of entire western Uttar Pradesh who cultivate sugarcane have better socio-economic standards in comparison to other farmers of different regions. This is indeed the result of the green revolution in this region. Because most of the region is a khadar region so there is no specific problem with water supply. Farmers of this region have their big houses, multiple cars and royal standard of living. They spent lacs of rupees in their wedding ceremonies, they are now industrialists and running financing assistance.

The regional politics of the entire Western Uttar Pradesh. Is governed by sugarcane cultivation and its attributes. From Ch Charan Singh (Ex-Prime Minister of India) to Ch Ajit Singh (Ex Chief Minister of Uttar Pradesh) all are the byproducts of this Sugarcane belt politics. There is an independent ministry and constituted commission for sugarcane in the state government. There are always special promises for the sugarcane farmers in the manifestos of each political party.

But this is also true day by day the groundwater level is going down to its lowest level. Infected Ex Chief Minister of Uttar Pradesh Sh. Akhilesh Yadav requested the farmers of this region not to grow the sugarcane crop and to change their agricultural habits. There is a rapid decline in the soil fertility and land capacity of the region. Despite having huge raw materials, this region is deprived of Mega food parks and Agro-processed industries. Even today the socio-economic standards of the farmers the Western Uttar Pradesh do not compete with the standards of the farmers of the Punjab and Haryana.

#### References

1. Diwedi, R.P., Kareemulla, K., Singh, Ramesh., Rizvi, R.H., Chauhan, Jitender. (2009). *"Socio-economic analysis of Agro-forestry systems in western Uttar Pradesh."*
2. Joshi, P.K., Bahl, D.K., Jha, D. (2017). *"Direct employment effect of technical change in Uttar Pradesh agriculture."*
3. Kumar, Roop., Yadav, R.N., Mishra, Amit Kumar., Kumar, Akshay., Kumar, Sunil. (2013). *"Study on socio-psychological, socio-economic profile and constraints faced by the sugarcane growers in Meerut district of western Uttar Pradesh."*
4. Kumar, Sanjay., Singh, B.R. (2010). *"Performance feasibility and economic viability of sugarcane planter in western plain zone of Uttar Pradesh."*
5. Kshirsagar, K.G. *"Impact of Organic Farming on Economics of Sugarcane Cultivation in Maharashtra."*
6. Lerche, Jens. (2010). *"Politics of the poor: agricultural laborers and political transformations in Uttar Pradesh."*
7. Mall, R.K., Sonkar, G., Bhatt, D., Sharma, N.K., Baxla, A.K., Singh, K. K. (2014). *"Managing impact of extreme weather events in sugarcane in different Agro-climatic zones of Uttar Pradesh."*
8. Matsuoka, Makoto. (2015). *"Sugarcane cultivation and sugar industry in Japan" about that sugarcane is still a major crop and plays a key role that supports the livelihood of the region."*

9. Narayanamoorthy, A. “*Economics of Drip Irrigation in Sugarcane Cultivation: Case Study of a Farmer from Tamil Nadu.*”
10. Naresh, R.K., Singh, S.P., Chauhan, Pankaj. (2014). “*Influence of conservation agriculture, permanently raised bed planting and residue management on soil quality and productivity in maize-wheat system in western Uttar Pradesh.*”
11. Naresh, R.K., Singh, S.P., Mishra, A.K., Kumar, Pradeep., Kumar, Vineet. (2013). “*Evaluation of laser leveled land leveling technology on crop yield and water use productivity in western Uttar Pradesh.*”
12. Nhiwatiwa, Tamuka., Dalu, Tatenda. “*Impact of irrigation-based sugarcane cultivation on the Chiredzi and Runde Rivers quality, Zimbabwe.*”
13. Prasara, Jittima., Shabbir, A., Gheewala, H. (2014). “*Sustainability of sugarcane cultivation: a case study of selected sites in north-eastern Thailand.*”
14. Qureshi, M. Asghar., Afghan, Shakarganj Shahid. (2010). “*Sugarcane cultivation in Pakistan.*”
15. Rahman, Fazlur., Bee, Nida. (2016). “*The geographical analysis of the Trends and Pattern of Sugarcane Production in western Uttar Pradesh.*”
16. S Birth, Pratap., Singh, M. K. (2013). “*structure of rural income inequality: A study in western Uttar Pradesh.*”
17. Saxena, Beenam., Rani, Asha., Sayyed, R.Z., Ali, Hesham. (2012). “*Analysis of nutrients, heavy metals and Microbial content in organic and non-organic agriculture fields of Bareilly region, western Uttar Pradesh.*”
18. Siddique, Kalim. (2011). “*Credit and Marketing of sugarcane: A field study of two villages in western Uttar Pradesh.*”
19. Silva, A.J.N., Ribeiro, M.R., Silva, V.N., Carvalho, F.G. (2012). “*Impacts of sugarcane cultivation on soil carbon fractions, consistence limits and aggregate stability of a Yellow Latosol in Northeast Brazil.*”
20. Singh, Archana., Shrivastava, R.S.L. (2012). “*Growth and instability in sugar cane production in Uttar Pradesh: A regional study*”
21. Singh, Jaswant., Singh, A.K., Sharma, M.P., Singh, P. R. (2016). “*Mechanization of Sugarcane Cultivation in India*”
22. Singh, S.P., Gangwar, B., Singh, M.P. (2016). “*the economics of Sugarcane-based Farming System in Western Uttar Pradesh.*”
23. Singh, Surat. (2017). “*Adoption gaps and constraints analysis of sugarcane cultivation in Bulandshahr district of Uttar Pradesh*” about the Sugar

*factories in India are an important source of employment and income for labor in rural areas.”*

24. Tiwari, Ajay Kumar., Kumar, Sunil., Vishwakarma., Rao, G. P. (2015). *“Increasing incidence of sugarcane grassy shoot diseases in Uttar Pradesh.”*
25. Umar, R., Muqtada, M., Khan, A., Absar, A. (2015). *“Groundwater hydrochemistry of a sugarcane cultivation belt in parts of Muzaffarnagar district of Uttar Pradesh.”*
26. Verma, Lalit., Solanki, Arun. (2018). *“Cost and returns analysis of sugarcane production in Baghpat district of western Uttar Pradesh.”*
27. Wood, A.W. (2008). *“Soil degradation and management under intensive sugarcane cultivation in North Queensland.”*
28. Zaidi, Naheen Haider., Munir, Abdul. (2015). *“Participation of women in sugarcane farming systems: A case study of Bijnor district Western Uttar Pradesh.”*
29. *Status paper on Sugarcane by Directorate of sugarcane development. Govt. of India: Ministry of Agriculture.*
30. *“Present Mechanization Status in Sugarcane-A Review. International Journal of Agriculture Science.”*
31. *“Sugarcane in India” A report by the Indian Institute of Sugarcane Research. Lucknow, Uttar Pradesh.*
32. *Farmers.gov.in*
33. *Department of Food & Public Distribution. Ministry of Agriculture.*
34. *Commission for Agriculture costs and Prices (CACP).*
35. (2020). *Report by Directorate of Sugarcane development. GOI.*