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International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Changing Cropping Pattern in Chandauli District Uttar Pradesh: A Block Level Analyse

Amir Khan

Research Scholar Dept. of Geography, Aligarh Muslim University

DOI: https://doi.org/10.55248/gengpi.2022.3.7.48

ABSTRACT

India is second most densely country in the world having 125.08 crore of population (census 2011) and about 60% population engage in agriculture both directly or indirectly. With the improvement of technology to feed the population and growth of economy cropping pattern affect change over period of time. Changing cropping pattern shows need and desire of population and for the sake of country's Economy.

Cropping patterns in the Chandauli district of Uttar Pradesh and their changes through time are the key topics of discussion in this study (2010 to 2020). Cropping is a fluid idea that evolves throughout time. However, the study also identified the elements that influence changes in cropping patterns in the study area over time, including technological advancements, farmer rationality, educational attainment, and government intervention in the agriculture sector. The data for the study was gathered from secondary sources and taken from the Statical Handbook. Rice and wheat are the most important crops, accounting for over 90% of net seeded area from 2010 to 2020

Keywords; Technology, Cropping Pattern, Economy, Chandauli District.

INTRODUCTION:

Agriculture is a way of life and a tradition for millions of cultivators in India for centuries. More than 60% of people depend on agriculture, directly or indirectly. At the time of independence India was facing the problem of food shortages. The annual food production at that time was 51 million tonnes. It increased to 308.32 million tonnes by 2020-21(Agri.Ministry GOI). Implication of first National Agriculture policy in 2000 is to achieve the sustainable agriculture growth in term of food production and make self-sufficiency in food. The Policies adopted by the Government of India resulted in attaining self-sufficiency in food grains. After the introduction of agriculture policy, there is a shift in the cropping pattern resulting in the decline continuously in area under food crops and increase in the area under non- food crops continuously. This has an influence on the prices of food grains and the food security.

Cropping pattern refers to the proportion of land under cultivation of different crops at different points of time. This indicates the time and arrangement of crops in a particular land area. Any change in the cropping pattern would cause, (1) Change in proportion of land under different crops (2) change in space sequence and time of crops. The cropping patterns determine the level of agricultural production. This reflects the agricultural economy of any region. The cropping patterns are affected by changes in agrarian policy, availability of agricultural inputs, improvement in technology. Thus, the cropping patterns are beneficial in improving the fertility of the soil, thereby, increasing the yield of the crops. It ensures crop protection and availability of nutrients to the crops.

This study mainly concentrated on cropping pattern and its change over decade (2010-2020) in the district of chandauli however determining factor in change of cropping pattern will also discuss in this paper.

OBJECTIVE:

I. To assess the cropping pattern in Chandauli District Uttar Pradesh.
II. To evaluate the changing cropping pattern over period of time (2010-2020) Chandauli District Uttar Pradesh.

METHODOLOGY:

The present study deal cropping pattern of chandauli district using secondary sources of data taken from District statical Handbook of respective year. There are six major crops grown in chandauli district Rice, wheat, Pulses, oilseeds, sugarcane these crops taken in to consideration in the study. Pulses

include Arhar, peas, Masur, moong, Chana while oilseed include Mustard, sunflower, alsi, til, soyabean are calculated. To analyse block wise percentage share of each crop MS Office and mathematical calculation are used in the study area while ARC GIS are been used for map making.

LITERATURE REVIEW:

Punith Kumar et al: Mainly focus on impact of agriculture policy on cropping pattern in India using secondary sources of data. His concluding remark is that production of food crop relatively declines from non-Food crop because of profitability of Non-food crops.

C.G Ranade: Talked about change of cropping pattern between pre–Green Revolution and post green revolution and comparison of productivity between northern state and coastal region of Tamil Nādu. He found that cropping pattern Index higher in coastal region of Tamil Nādu than Northern region while fertilizer input is positive related to agriculture productivity in Northern region than in coastal region.

S. JenithaJassie**et al:** Evaluate Changing cropping pattern of India between 2006 to 2015-16 using secondary sources of data. The major finding of his research Rice, wheat, and Cotton are significantly positive growth in cropping area while course cereal, Groundnut, are decline in cropping area in respective year which is alarming for Indian agriculture.

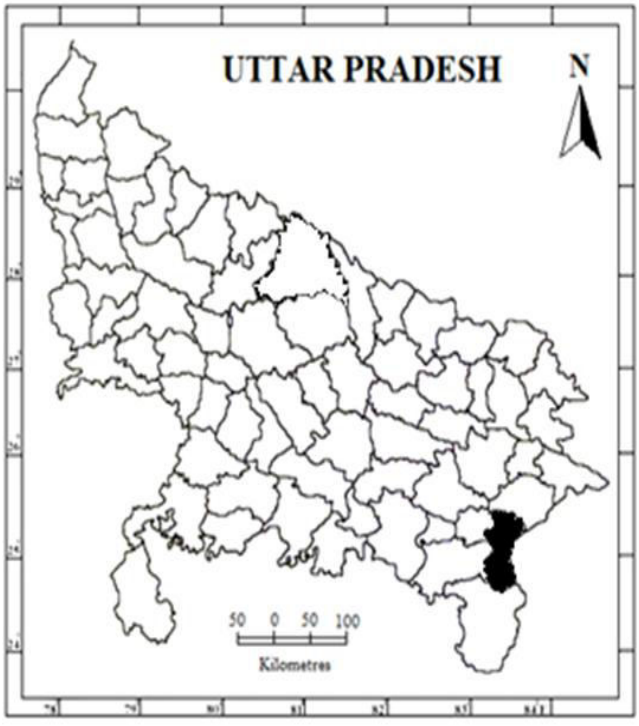
Mruthanjaya et al: Examine the regional disparity of cropping pattern in India, however he found that implication of technology, infrastructure support, price support, market and irrigation facility make positive growth in production of food crops while imbalance in cropping system in India.

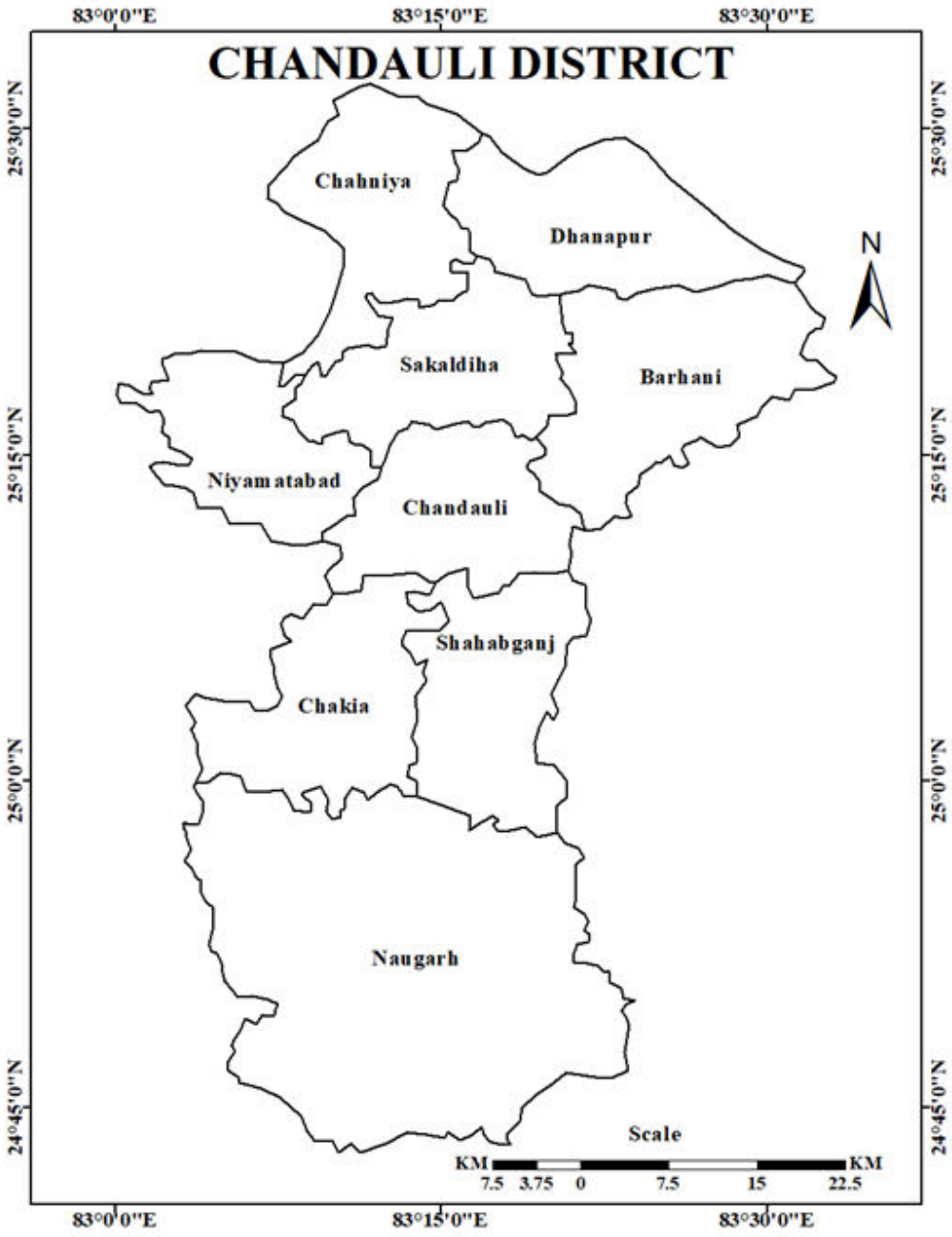
Moin Khan et al: Evaluate Block wise changing cropping pattern of Kheri District Uttar Pradesh using secondary sources of data. And found agriculture practice is derived from Physical and socio-cultural factor and it is shown that cropping area of Rice and wheat are decline due to water table decrease while sugarcane area increase significantly due to availability of market and infrastructure facility.

Shaikh MohdMouzam et al: Calculate cropping pattern in Andhra Pradesh between 1980 to 2010 and its change using simple percentage method and it is found that positive growth in the area of GCA, GIA, Net irrigated area and percentage of net irrigated area to net sown area. While negative change found in Net sown area however he also computed crop wise changes of area over respective year.

STUDY AREA:

The present study has been carried out in Chandauli District of Uttar Pradesh which was constituted in 1997 from Varanasi, The District Chandauli is located in 24Â° 56′ to 25Â° 35′ to north and 81Â° 14′ to 84Â° 24′ East, having 9 Bocks Namely Chandauli, Skaldiha, Dhanapur, ChahaniyaNiyamtabad, Chakia, Shahabganj, Naugarh, Barahani. As per 2011 census total reported area is 2541 Sq. kilometres (48th rank in the states) having total population is 19,52,756. Agriculture is the prime economy activity more than half of population of district engage in Agriculture activity. Rice is major agriculture products because of this it is also known as “Dhaankaakatora” [Bowl of rice] while wheat, sugarcane, barley, gram, peas, masoor, maize, bajra are also grown in considerable amount. For grow of these crops’ irrigation facility much more needed, for the sake water requirement of crops number of irrigation sources available i.e., Canal, deep well, pucca well, pump set, tube well in the district. The study carried out by analysing cropping pattern and its changes over given period of time and also discuss factor affecting the change in cropping pattern in Chandauli district.





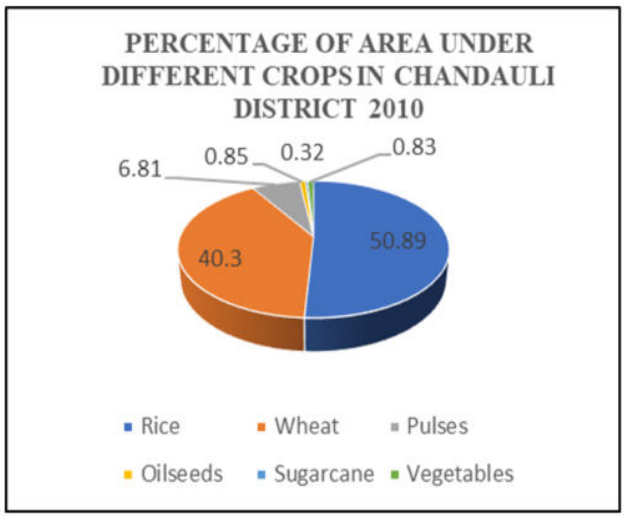
RESULT AND DISCUSSION:

The Study area have block wise variation in physical like southern blocks have mountain range called vindhyachal range while northern region lies in plain region this will also lead in variation of soil characteristics which determine the cropping pattern and its variation over districts. It is clearly shown in Table 1 in the year 2010 rice is important crops in district cover 50.89% of total cropped area while wheat is second most cropped area cover 40.3% however pulses is another significant crop to grow in the district 6.81%. Although, oilseeds, Sugarcane, and vegetables are also cover considerable amount of total cropped area in chandauli district it is 0.85%,0.32%,0.83% respectively in the districts.

In the year 2020 cropping pattern change with demand of specific crops it is depict in Table 1 that total cropped area of rice cover 50.07 % lower than previous year (2010) and area of wheat increase highest rate it is 42.48%. while change in the area of pulses and oilseeds show negative total area of pulses is 5.86% and oilseeds cover 0.44%, however gross cropped area of sugarcane show no changes constitute 0.32% while vegetables have 0.84% of gross cropped area.

TABLE1: **Crop wise Percentage of Area in Chandauli District during 2010 and 2020.**

Sr. No	Crops	2010	2020	Changes
1	Rice	50.89	50.07	-0.82
2	Wheat	40.3	42.48	2.18
3	Pulses	6.81	5.86	-0.95
4	Oilseeds	0.85	0.44	-0.41
5	Sugarcane	0.32	0.32	0
6	Vegetables	0.83	0.84	0.01



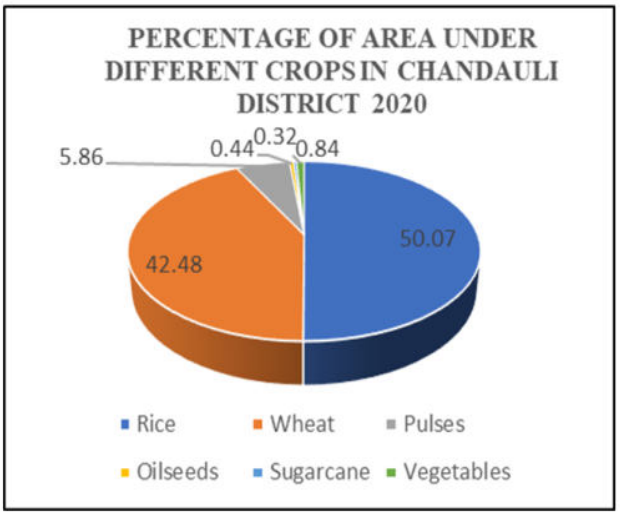


TABLE2: BLOCKWISE PERCENTAGE OF VARIOUS CROPS IN 2010

Blocks	Rice	Wheat	Pulses	Oilseed	Sugarcane	Vegetables
Chaniya	39.72	49.42	8.59	0.70	0.65	0.92
Dhanapur	45.03	46.86	6.25	0.46	0.68	0.72
Sakaldiha	51.22	43.47	4.08	0.38	0.22	0.62
Niyamtabad	47.84	45.51	3.92	1.13	0.52	1.08
Chandauli	53.48	39.04	6.31	0.27	0.12	0.77
Barhni	54.52	29.96	14.41	0.32	0.26	0.52
Chakiya	50.86	41.75	5.95	0.40	0.23	0.81
Shahabganj	52.94	39.37	6.14	0.58	0.09	0.89
Naugarh	62.36	27.31	5.67	3.38	0.10	1.18

Table 2: Define percentage of area under various crops in 2010 and it is clearly shown in table that Naugarh Block have highest percentage of rice 62.36% under cultivation while Chahaniya Block recorded minimum percentage of area under rice 39.72%. next to rice wheat is second most important staple crops in the district Chahaniya Block have maximum percentage of gross cropped area under wheat cultivation while minimum area lies under wheat cultivation in Naugarh Block 27.31%. pulses rank third in area under total gross crop area and it is noticed that Barahani Block have largest area under pulses 14.41% and Niyamtabad block record minimum area under pulses cultivation 3.92%. succeeding to pulses oilseed is another crop grow at mere scale and it recorded highest in Naugarh block 3.38% while minimum area covers in Chandauli Block this difference is due to water scarcity over region. Sugarcane is grown only for own consumption Dhanapur cover 0.68% while Shahabganj share least area 0.09% in the year 2010. However, vegetables are also share in gross cropped area to extend economy over region and it is noticed in the Tables Naugarh block share maximum percentage of cropped area 1.18% while Barahani block minimum percentage of area in vegetables 0.52%.

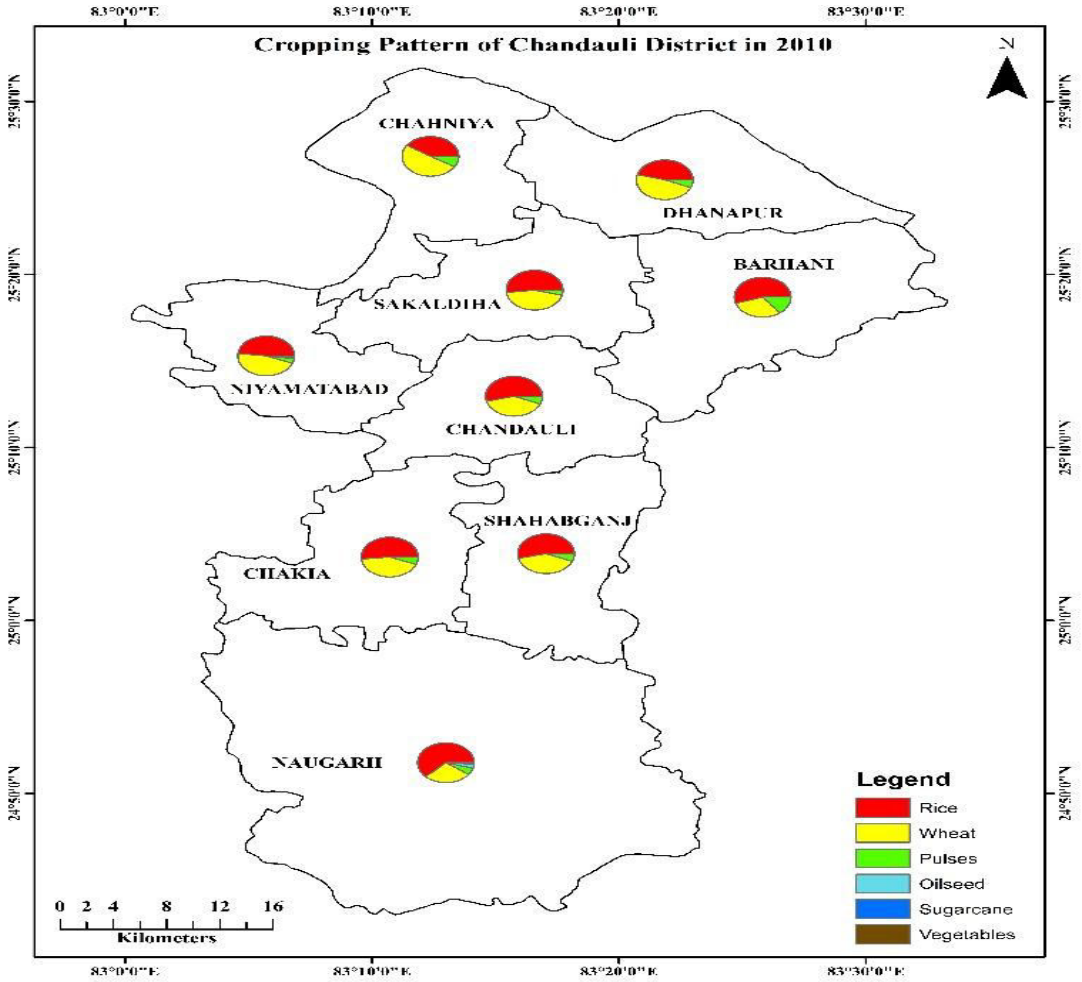


TABLE 3: **BLOCKWISE PERCENTAGE OF VARIOUS CROPS IN 2020**

Blocks	Rice	Wheat	Pulses	Oilseed	Sugarcane	Vegetables
Chaniya	38.41	51.87	7.82	0.43	0.58	0.90
Dhanapur	43.76	49.15	5.47	0.27	0.62	0.73
Sakaldiha	49.36	45.83	3.46	0.22	0.50	0.63
Niyamtabad	46.65	47.89	3.31	0.59	0.45	1.11
Chandauli	52.10	41.42	5.32	0.30	0.10	0.75
Barhni	54.22	32.51	12.33	0.18	0.23	0.54
Chakiya	49.59	43.94	5.20	0.23	0.22	0.82
Shahabganj	51.65	41.85	5.21	0.32	0.07	0.91
Naugarh	64.85	27.83	4.59	1.46	0.10	1.17

Table 3: Show the block-wise share of various crop and its percentage in the year 2020 and it has been noticed that change in gross cropped area is inherent so for Rice is concerned maximum percentage of area fall under Naugarh Block 64.85% while minimum area comes under Chahaniya Block. Wheat is another staple crop grown in the district. The highest area covers by wheat in Chahaniya Block 51.87% while lowest area falls under Naugarh Block 27.83%. pulses are the next crop grown after rice and wheat and it is Barahani Block in which maximum area of pulses 12.33% although minimum share of area comes under Niyamtabad Block 3.31%. oilseed is grown on accountable amount Naugarh Block share most area 1.48% while least area cover by Barahani Block 0.18%. Sugarcane is grown mostly for own consumption and it has been seen in the Table that Dhanapur Blocks cover highest gross cropped area of sugarcane 0.62% while Shahabganj block have minimum percent of area under sugarcane 0.07%. vegetables are grown for self-consumption Naugarh block share maximum area under vegetables 1.17% Barahani block show least area under vegetables 0.54%.

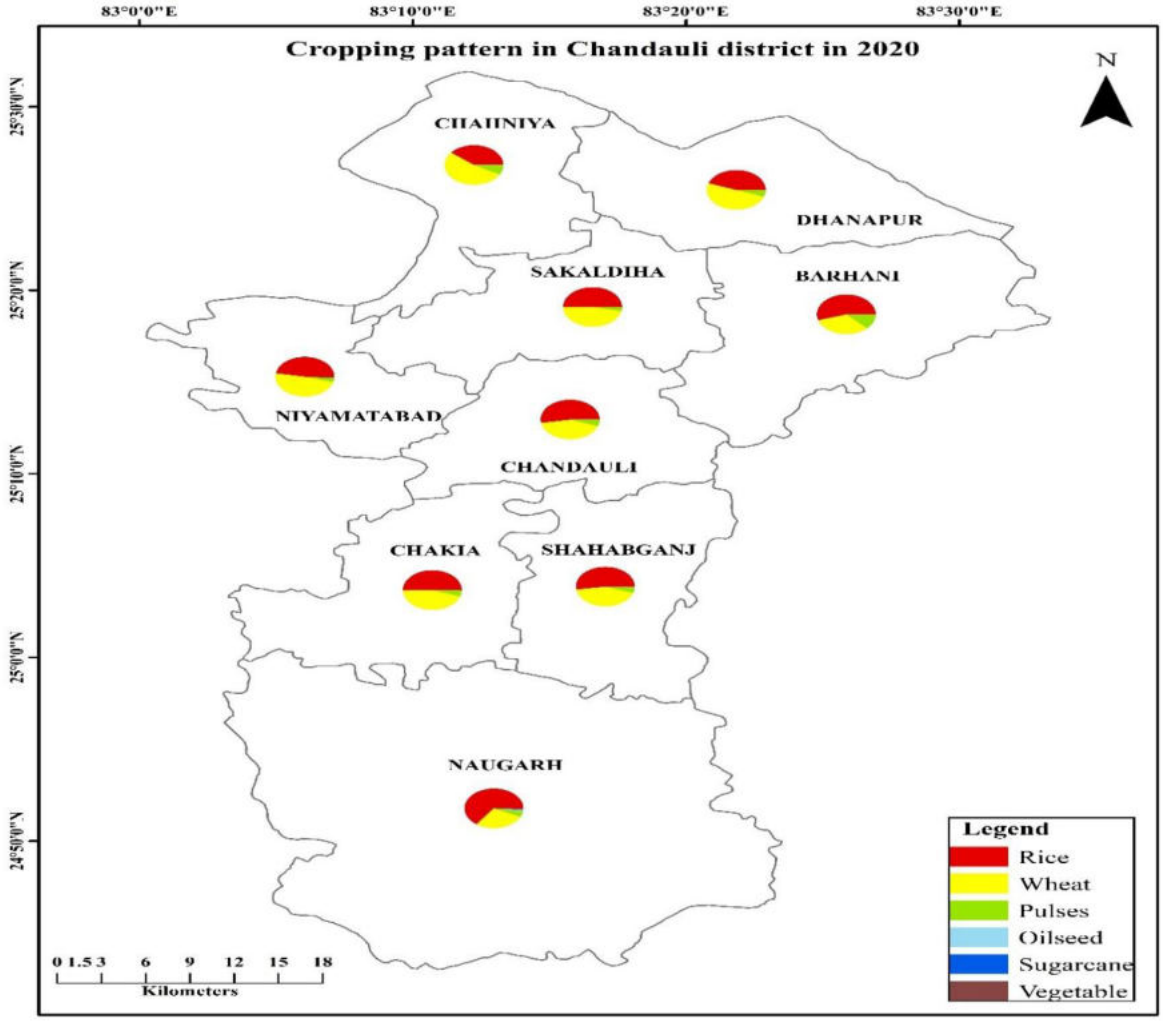


TABLE 4: BLOCKWISE CHANGE IN PERCENTAGE OF VARIOUS CROPS:

Blocks	Rice	Wheat	Pulses	Oilseed	Sugarcane	Vegetables
Chaniya	-1.31	2.45	-0.77	-0.27	-0.07	-0.02
Dhanapur	-1.27	2.30	-0.78	-0.19	-0.06	0.01
Sakaldiha	-1.86	2.36	-0.62	-0.16	0.28	0.00
Niyamtabad	-1.19	2.37	-0.61	-0.54	-0.07	0.03
Chandauli	-1.38	2.38	-0.99	0.03	-0.02	-0.02
Barhni	-0.30	2.55	-2.09	-0.14	-0.03	0.02
Chakiya	-1.27	2.19	-0.75	-0.17	0.00	0.01
Shahabganj	-1.28	2.48	-0.94	-0.26	-0.02	0.02
Naugarh	2.49	0.52	-1.07	-1.91	0.00	-0.02

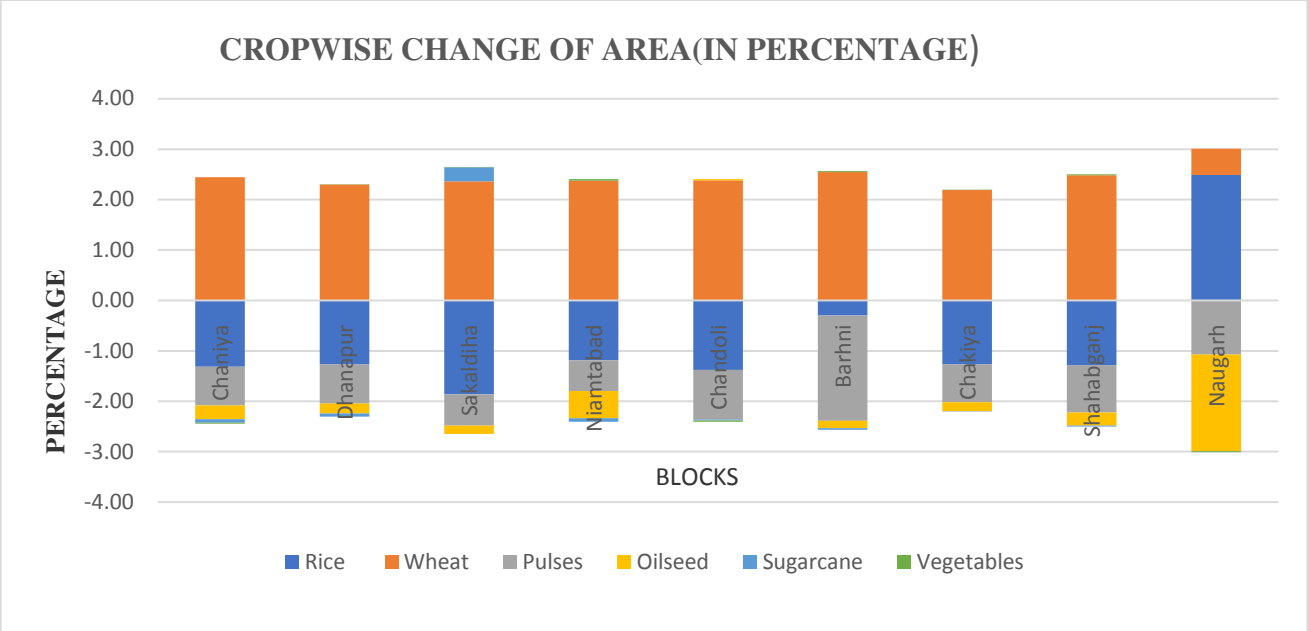


TABLE 4: Define the change of gross cropped area from 2010 to 2020, this change is due to demand of crops physio-social factor of a particular region. It is clearly shown in fig that cropped area of rice decrease in all blocks over given period of time Naugarh block recorded maximum change of area under rice -2.49% however minimum change shown in -0.30 Barahani Block. Wheat shows positive growth over period of time Barahani block in which highest positive growth of wheat 2.55% although Naugarh block recorded lowest growth 0.52%. Pulses have negative growth maximum change found in Barahani block -2.09% and minimum change shows in Niyamtabad Blocks. It is sugarcane in which both positive and negative growth shown block-wise Sakaldiha block recorded the highest growth while Niyamtabad show the lowest growth -0.07% during given period of time. Change in vegetables area at mere rate but considerable amount Niyamtabad show maximum change 0.03% while Naugarh block show minimum change during course of study. Change in gross cropped area mainly due to climatic as well as physio- economic factor. However, availability of Land size and technological factor are also responsible to grow particular crops over region.

CONCLUSSION:

The study reveals the cropping pattern of chandauli district and its change during period of time (2010-2020). And it is found that Rice and wheat are most staple crops in the study area cover about 90% of gross cropped area because of physical condition of chandauli district while pulses placed third occupying about 6% of total cropped area this is due to demand of crops and consumption. Oilseed, sugarcane, and vegetables are also grown at considerable amount this is mainly due to self-consumption. However, change in crops area is due to physio-cultural setting of study area availability of agriculture input, technological, and infrastructure facility together deciding factor to grow of particular crops and its change over given period of time.

ACKNOWLEDGMENT:

First and foremost, the praises and thanks to Almighty Allah for the completion of this research work. I would like to express my thanks to Dr.Moin Khan Dr Hasibur Rahman Mohammad Yusuf and Md Asif Ali for helping me during this study. I would like to acknowledge FuzalAhamad, Suhail Ahamad, Muntazim Ahmad and Sakil Ansari for their support and help.

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