International Journal on Future Revolution in Computer Science & Communication Engineering
Volume: 1 Issue: 5
ISSN: 2454-4248
06 - 13

Temporal Change of Cropping Pattern in Western Uttar Pradesh

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Abstract

The agriculture sectors continue to predominate and contribute a large share of the western Uttar Pradesh output. Agriculture is the main source of livelihood to majority of the population of western Uttar Pradesh. More than 70 percent of population western Uttar Pradesh directly or indirectly is depended on agriculture and allied sectors. The aim of this study is to examine the cropping pattern in western Uttar Pradesh in Uttar Pradesh state. This paper also estimated the changing cropping pattern at the district level between 2000-01 to 2013-14. The data has been derived from the district statistical handbooks. The findings demonstrate that there is increase in the cropped area of wheat and rice crop, whereas maize and barley shows a decline in the cropped area.

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Introduction

The agriculture sectors continue to predominate and contribute a large share of the western Uttar Pradesh output. Agriculture is the main source of livelihood to majority of the population of western Uttar Pradesh. More than 70 percent of population western Uttar Pradesh directly or indirectly is depended on agriculture and allied sectors. Cropping pattern refers to the proportion of area under various crops at a point of time, change in this distribution over a period of time and factors affecting this change in distribution. In fact, the Cropping pattern is a dynamic concept as it changes with time and space. In any particular area, it is subjected to change from time to time with the affecting conditions. The cropping pattern of an area is largely determined by the physical, socio-cultural and historical factors. Western Uttar Pradesh districts are widely notable for the sugarcane cultivation and sugar production. Rice and wheat are other important crops in western Uttar Pradesh.

Methodology

The present study is based on secondary sources of data. The data has been calculated from the district statistical handbook of all districts of western Uttar Pradesh of respective years. The cropping pattern of the districts has been examined by taking into account four significant crops- rice, wheat, sugarcane, , maize, and barley. The percentage area under different crops to the total cropped area in the year 2000-01 to 2013-14 was calculated and the changes in the cropping pattern in these years were assessed.

Study Area

Western Uttar Pradesh, sometimes simply referred to as West U.P. It is located between 29°58’12” N to 26°28’12”N latitudinal extent and 77°35’0” E to 80°6’0” E longitudinal extent. Western Uttar Pradesh is a region in India that comprises the western districts of Uttar Pradesh state, including the areas of Rohilkhand and Braj. The region has some demographic, economic and cultural patterns which are distinct from other parts of Uttar Pradesh, and more closely resemble those of Haryana and Rajasthan states. Western

 ISSN: 2454-4248
06 - 13

Uttar Pradesh shares borders with the states of Uttarakhand, Haryana, Delhi, Rajasthan and Madhya Pradesh, as well as a brief international border with Nepal in Pilibhit district. Western Uttar Pradesh has experienced rapid economic growth, similar to Haryana and Punjab, due to the successes of the Green Revolution. Western Uttar Pradesh includes 26 districts in six divisions: Meerut division, Saharanpur division, Moradabad division, Bareilly division, Agra division and Aligarh division.

Result and Discussion

It is evident from table 1 that in Western Uttar Pradesh as a whole rice accounts for 15.71 per cent of the total Gross Cropped Area in 2000-01 which increased to 16.65 per cent in 2013-14. The area under rice is high in eastern parts of western Uttar Pradesh. Pilibhit district recorded highest area (41.11 per cent) under rice cultivation in western Uttar Pradesh, followed by Rampur (38.81per cent), Shahjahnpur (34.50 per cent) and Bareilly (33.80 per cent). On the other hand western districts like Meerut, Bulandshahr, Hapur, Ghaziabad, Gautam Buddha Nagar, Baghpat, Muzaffarnagar, Shamli shows lower coverage of area under rice. Here area devoted to rice as percentage to total area under rice is less than 10 percent in 2000-01. In 2000-01 only 8 districts out of 26 shows more than 15 per cent of area under rice. The change in the area under rice during 2000-01 to 2013 shows that the western part of western Uttar Pradesh like Bulandshahr, Gautam Buddha Nagar, Ghaziabad, Hapur, Shamli, and southern districts of Aligarh, Hathras, Agra shows an increase in area under rice cultivation(Map 3.4). Whereas the districts like Rampur Bareilly, Pilibhit, Mainpuri, Etah shows a decline in the percentage of area under rice cultivation (Table 1)

Table: 1

Area under Rice Crop to Gross Cropped Area

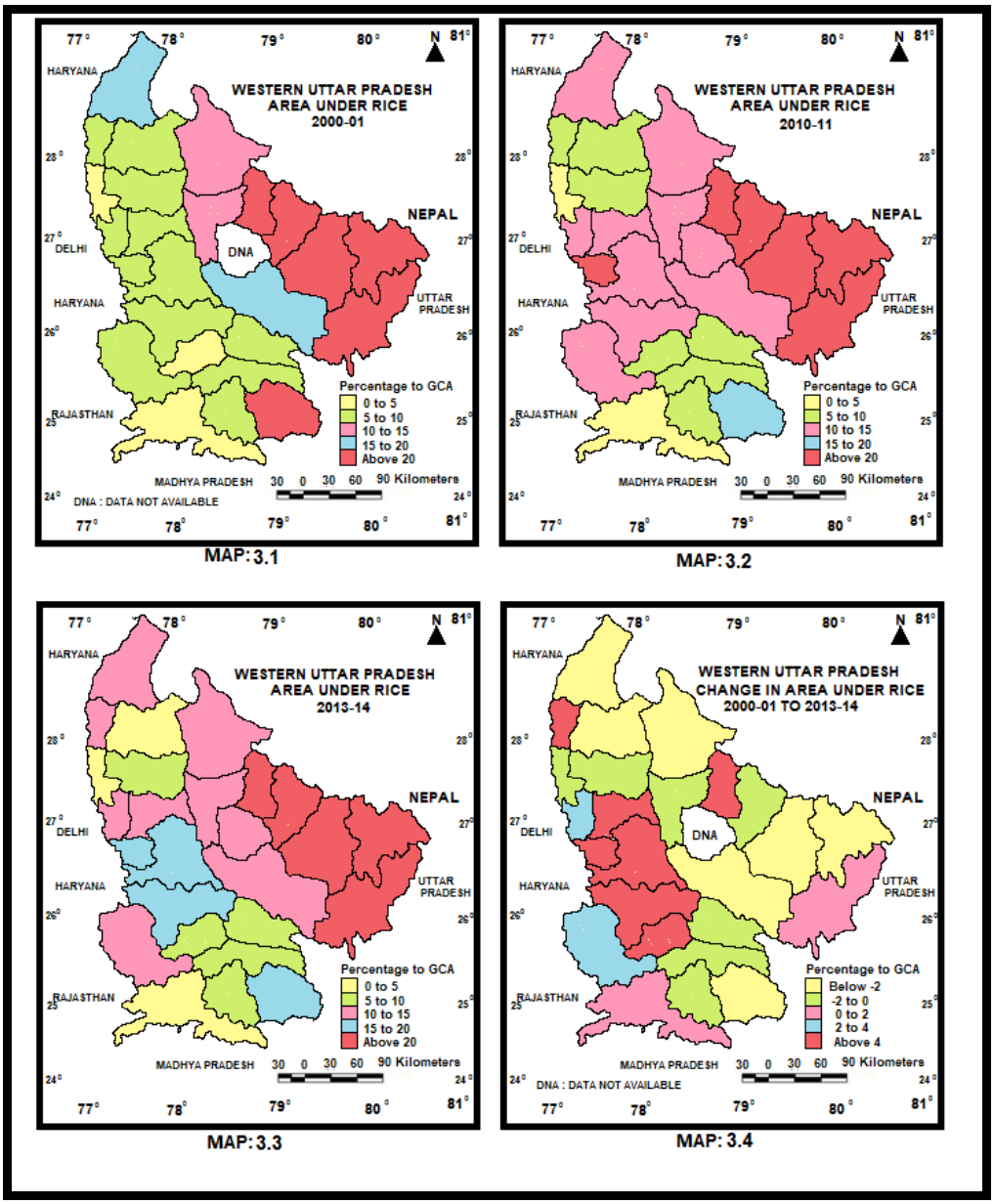
	Total Rice(in Hectare)			Percent to Gross Cropped Area			Change in Area to GCA
District	2000-01	2010-11	2013-14	2000-01	2010-11	2013-14	2000-01 to 2013-14
Meerut	21226	18206	15379	6.71	6.04	5.12	-1.59
Bulandshahr	45683	74681	92428	9.32	14.32	17.74	8.42
Gautam B. Nagar	15652	23127	14383	9.44	23.11	15.72	6.28
Ghaziabad	21726	10094	9434	9.49	12.02	11.58	2.09
Hapur	21726	20901	21027	9.59	14.43	14.63	5.04
Baghpat	5951	4960	4820	3.41	2.83	2.78	-0.63
Saharanpur	71743	55356	57811	16.53	13.33	13.96	-2.57
Muzaffarnagar	41836	21226	12765	8.44	6.26	3.85	-4.59
Shamli,	41836	14773	20686	8.44	9.45	12.76	4.32
Moradabad	134466	95344	94947	25.07	29.76	29.82	4.75
Bijnor	65832	59176	56532	14.43	13.68	12.33	-2.1
Rampur	136822	144801	140667	38.81	38.78	38.38	-0.43
Jyotibha P Nagar	28486	28071	26933	10.52	10.75	10.25	-0.27
Sambhal	DNA	42170	39514	DNA	11.85	10.76	DNA
Bareilly	179881	165686	158821	33.80	30.51	29.63	-4.17
Badaun	110226	69838	78127	16.42	12.11	12.68	-3.74
Pilibhit	151391	162786	150744	41.11	41.28	38.70	-2.41
Shahjahanpur	197249	201465	211808	34.50	33.60	35.29	0.79

 ISSN: 2454-4248
06 - 13

Agra	1322	5215	5162	0.32	1.22	1.22	0.9
Firozabad	21506	18216	22724	7.70	6.22	7.41	-0.29
Mainpuri	64729	65377	63022	21.25	18.75	18.92	-2.33
Mathura	38821	42272	48212	9.10	10.66	12.05	2.95
Aligarh	34648	65765	86444	7.16	12.27	15.81	8.65
Etah	40199	20119	18734	7.87	6.64	6.16	-1.71
Hathras	9989	16132	21979	4.18	6.70	8.95	4.77
Kasganj	15610	15732	16075	6.82	6.39	6.28	-0.54
Western UP	**1518556**	**1461489**	**1489178**	**15.71**	**16.45**	**16.65**	**0.94**

Source: Statistical Bulletin, 2000 to 2014, Uttar Pradesh.

WESTERN UTTAR PRADESH
AREA UNDER RICE



 ISSN: 2454-4248
06 - 13

Table: 2

Area under Wheat Crop to Gross Cropped Area

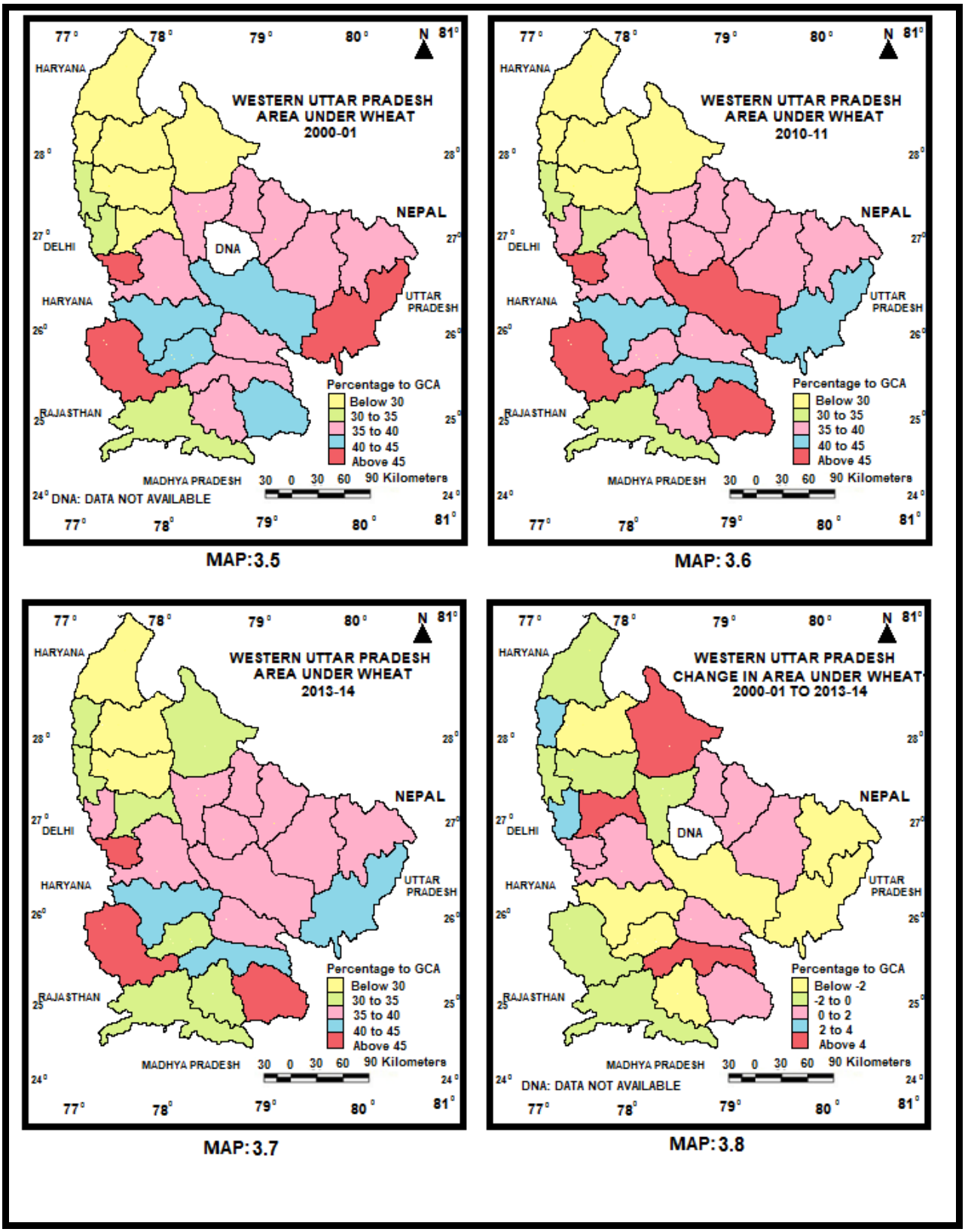
	Wheat(in Hectare)			Percent to Gross Cropped Area			Change in Area to GCA
District	2000-01	2010-11	2013-14	2000-01	2010-11	2013-14	2000-01 To 2013-14
Meerut	86329	77615	78013	27.29	25.75	25.99	-1.3
Bulandshahr	181942	197779	194116	37.12	37.94	37.26	0.14
Gautam B. Nagar	77919	49241	44305	46.99	49.21	48.43	1.44
Ghaziabad	71538	30860	28506	31.26	36.77	35.01	3.75
Hapur	48258	46368	43488	21.30	32.02	30.26	8.96
Baghpat	57307	56109	55427	32.85	32.12	32.06	-0.79
Saharanpur	121506	112582	112763	28.06	27.11	27.24	-0.82
Muzaffarnagar	135558	90399	82382	27.36	26.66	24.85	-2.51
Shamli	134526	45584	49925	27.15	29.17	30.80	3.65
Moradabad	196895	120424	121959	36.71	37.59	38.30	1.59
Bijnor	115900	110021	153242	25.41	25.44	33.43	8.02
Rampur	133686	148777	144186	37.92	39.84	39.34	1.42
Jyotibha P Nagar	95440	94119	92094	35.27	36.05	35.04	-0.23
Sambhal	DNA	139606	138781	DNA	39.24	37.80	DNA
Bareilly	190452	212914	200048	35.79	39.21	37.33	1.54
Badaun	295959	259504	232327	44.09	45.03	37.71	-6.38
Pilibhit	141609	154193	141500	38.46	39.10	36.33	-2.13
Shahjahanpur	257834	252136	252861	45.10	42.05	42.13	-2.97
Agra	137775	140427	136035	33.59	33.06	32.36	-1.23
Firozabad	109295	102934	100183	39.16	35.16	32.67	-6.49
Mainpuri	132468	160607	150115	43.49	46.08	45.07	1.58
Mathura	209170	194715	195256	49.05	49.13	48.80	-0.25
Aligarh	211657	223816	223574	43.76	41.77	40.91	-2.85
Etah	194161	135664	135259	38.04	44.80	44.48	6.44
Hathras	99205	86515	82467	41.51	35.94	33.58	-7.93
Kasganj	84000	96183	94617	36.73	39.10	37.00	0.27
Western UP	**3520389**	**3339092**	**3283429**	**36.42**	**37.60**	**36.71**	**0.29**

Source: Statistical Bulletin, 2000 to 2014, Uttar Pradesh.

Wheat account for maximum area under cultivation in western Uttar Pradesh (36.71) in relation to other crops. The area under wheat shows a little increase from 36.42 per cent in 2000-01 to 36.71 per cent in 2013-14 Table 2 in western Uttar Pradesh. Mathura and Gautam Buddha Nagar recorded more than 48 per cent of total gross cropped area covered under wheat cultivation. However, beside Mathura and Gautam Buddha Nagar Etah, Aligarh, Mainpuri and Shahjahanpur recorded more than 40 per cent of their total gross cropped area under wheat cultivation. On the other hand Meerut, Saharanpur and Muzaffarnagar show less than 30 per cent area under wheat cultivation (Map 3.7). The study period 2000-01 to 2013-14 shows that Hapur Bijnor and Etah show an increase in the area under cultivation (Table 2). On the hand Badaun, Firozabad and Hathras shows declined in the area under wheat cultivation from 2000-01 to 2013-14.

ISSN: 2454-4248
06 - 13

WESTERN UTTAR PRADESH
AREA UNDER WHEAT



MAP:3.5

MAP: 3.6

MAP:3.7

MAP:3.8

 ISSN: 2454-4248
06 - 13

Table: 3
Area under Barley Crop to Gross Cropped Area

	Barley(In Hectare)			Percent to Gross Cropped Area			Change in Area to GCA
District	2000-01	2010-11	2013-14	2000-01	2010-11	2013-14	2000-01 to 2013-14
Meerut	309	140	112	0.09	0.046	0.03	-0.06
Bulandshahr	11662	7060	6804	2.37	1.35	1.30	-1.07
Gautam B. Nagar	4954	1722	1265	2.98	1.72	1.38	-1.6
Ghaziabad	7283	171	84	3.18	0.20	0.10	-3.08
Hapur	1283	216	433	0.56	0.14	0.30	-0.26
Baghpat	220	58	38	0.12	0.03	0.02	-0.1
Saharanpur	127	46	37	0.02	0.01	0.01	-0.01
Muzaffarnagar	1332	200	171	0.26	0.05	0.05	-0.21
Shamli	1298	78	14	0.26	0.04	0.01	-0.25
Moradabad	334	11	6	0.06	0.01	0.01	-0.05
Bijnor,	48	12	3	0.01	0.01	0.01	0
Rampur	53	22	1	0.01	0.01	0.01	0
Jyotibha P Nagar	106	26	49	0.03	0.01	0.01	-0.02
Sambhal	DNA	389	631	DNA	0.10	0.17	DNA
Bareilly	230	68	46	0.04	0.01	0.01	-0.03
Badaun	1795	692	452	0.26	0.12	0.07	-0.19
Pilibhit	41	4	2	0.01	0.01	0.01	0
Shahjahanpur	628	421	250	0.10	0.07	0.04	-0.06
Agra	10826	7058	6018	2.64	1.66	1.43	-1.21
Firozabad	15462	7544	7928	5.54	2.57	2.58	-2.96
Mainpuri	3982	2373	2889	1.30	0.68	0.86	-0.44
Mathura	14635	5285	4266	3.43	1.33	1.06	-2.37
Aligarh	23678	7649	8042	4.89	1.42	1.47	-3.42
Etah	16089	9116	9031	3.15	3.01	2.97	-0.18
Hathras	9968	2535	2438	4.17	1.05	0.99	-3.18
Kasganj	5267	3201	2916	2.30	1.30	1.14	-1.16
Western UP	**131610**	**56097**	**53926**	**1.36**	**0.63**	**0.60**	**-0.76**

Source: Statistical Bulletin, 2000 to 2014, Uttar Pradesh.

In western Uttar Pradesh Maize and Barley lost its importance as the area of both the crops experienced declined from 2000-01to 2013-14 (Table 3 and 4). Maize accounts for 3.31 per cent area in 2000-01 which declined to 0.22 per cent in 2013-14. Barley is also insignificant in western Uttar Pradesh its area declined from 1.36 per cent of the GCA in 2000-01 to 0.60 per cent of GCA in 2013-14. It is also evident from table 3 and 4 that all the districts of western Uttar Pradesh experienced decline in area under Barley and Maize from 2000-01 to 2013-14.

 ISSN: 2454-4248
06 - 13

Table: 4

Area under Maize Crop to Gross Cropped Area

	Maize (In Hectare)			Percent to Gross Cropped Area			Change in Area to GCA
District	2000-01	2010-11	2013-14	2000-01	2010-11	2013-14	2000-01 to 2013-14
Meerut	3319	112	94	1.04	0.03	0.03	-1.01
Bulandshahr	73741	1348	1879	15.04	0.25	0.36	-14.68
Gautam B. Nagar	11993	0	0	7.23	0	0	-7.23
Ghaziabad	5049	20	2	2.20	0.02	0.01	-2.19
Hapur	5012	118	215	2.21	0.08	0.14	-2.07
Baghpat	808	0	0	0.46	0	0	-0.46
Saharanpur	8244	16	5	1.90	0.01	0.01	-1.89
Muzaffarnagar	904	76	39	0.18	0.02	0.01	-0.17
Shamli	855	12	0	0.18	0.01	0	-0.18
Moradabad	2441	39	20	0.45	0.01	0.01	-0.44
Bijnor	158	0	0	0.03	0	0	-0.03
Rampur	215	10	11	0.06	0.01	0.01	-0.05
Jyotiba R PNagar	5178	227	263	1.91	0.08	0.10	-1.81
Sambhal	DNA	1379	1571	DNA	0.38	0.42	DNA
Bareilly	299	86	84	0.05	0.01	0.01	-0.04
Badaun	16085	614	1241	2.39	0.10	0.20	-2.19
Pilibhit	259	50	51	0.07	0.01	0.01	-0.06
Shahjahanpur	3483	114	103	0.60	0.01	0.01	-0.59
Agra	218	91	111	0.05	0.02	0.02	-0.03
Firozabad	8624	8184	8395	3.09	2.79	2.73	-0.36
Mainpuri	34314	267	660	11.26	0.07	0.19	-11.07
Mathura	692	13	37	0.16	0.01	0.01	-0.15
Aligarh	42885	288	279	8.86	0.05	0.05	-8.81
Etah	58729	1112	1761	11.50	0.36	0.57	-10.93
Hathras	8628	235	325	3.61	0.09	0.13	-3.48
Kasganj	28583	2545	3300	12.49	1.03	1.29	-11.2
Western UP	**320716**	**16956**	**20446**	**3.31**	**0.19**	**0.22**	**-3.09**

Source: Statistical Bulletin, 2000 to 2014, Uttar Pradesh.

Conclusion

From the above analysis, it is evidently revealed that there is temporal change in cropping pattern in districts of western Uttar Pradesh. This spatial variation in agricultural practices is derived from physical and socio-cultural factors. The cropped area under wheat and rice experienced an increase whereas Maize and Barley crops experienced decline in these years.

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06 - 13

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