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Agricultural Land Use Pattern

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Abstract - The core of Uttar Pradesh's economy is agriculture. In this area, traditional agricultural practices predominated until relatively recently, but they are gradually changing as a result of the introduction of new inventions and scientific techniques. Over 75% of Uttar Pradesh's working population is employed in agriculture. This region contains essential agricultural inputs and resources that increase agricultural output, provide food, and a variety of industrial raw materials to fuel the agro-based industries. A study of agricultural land usage is obviously important in this area, as agriculture dominates the local economy. The primary goals of this essay are to outline the potential of agro-based enterprises and to describe the pattern of agricultural land usage in the Amroha district of Uttar Pradesh.

Keywords - Area under Food Grains, Area under Pulses, Area under Oil Seeds, , Area under Industrial Crops, Agro- based Industries

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INTRODUCTION

The optimal pattern of land use involves equitable distribution of resources among competing landowners. Problems with making good decisions when deciding between competing main land uses and optimizing the use of all types of land are what land use pattern analysis is all about.

Definition of Land Use by Lao Tzu: "In layman's words, land use is the cultivation of a parcel of land over a period of time. The most productively used piece of land is one that disappears entirely within a certain time frame, like a year. Even if just one day of the year is spent making use of the land, that one day counts toward the maximization of land usage. [1]

In his work "World Resources & Industries," Zimmer-man explains the motivations for and scope of land usage.Economists, however, use the term "land" in a broader sense to refer to all natural resources. The problem then is determining how valuable the available resources are. However, if we narrow our focus to farmland specifically, we can see how certain factors affect the restrictions placed on different kinds of farmland.[2]

MATERIAL AND METHODS

The main sources of information are the offices of private companies, which were contacted through several personal visits or questionnaires, as well as the government's public and unpublished records. The district statistical offices (books), district seventh five year plan, memoires and bulletins, as well as the offices of district cane officers, deputy sugar commissioners, general managers of district industry centers, managing directors of flour mills, and texti have all been used to gather the basic data regarding geographical background, general land use, agricultural raw materials, major and minor agro-based industries, and horticultural industry, etc.

Publications from the Directorate of Economic and Statistics, the Directorate of Industries, the District Industry Centers, the Department of Sugar, and the Directorate of Khadi & Village Industry Board of the U.P. Government have been used for research at Tehsil H.Q. Topographical maps of the region, monographs on village surveys produced by the government of Uttar Pradesh's Department of Census, and a number of articles from periodical literatures were all thoroughly examined, but not for their content but rather for the methodology, techniques, approach, analysis, and formulation of genetic modification.

RESULT

In India, a number of land distribution programs have been started. To have a wide range of land use planning options, it is crucial to gather data on the current land use and calculate land use potentials in a number of contexts, including physical, economic, and social ones.[3]

For human existence, land is a crucial fundamental natural resource. The potential for land usage is influenced by the physical environment, which includes the climate, terrain, soil, water, and

vegetation.The general "land use" in the past was categorized as arable, meadow, pasture, orchards, forest land, and non-agricultural area.[4]

The overall geographic area of Amroha district for the years 2018 through 2019 and 2020 and the area used for different purposes for the same years are shown in a table, respectively.

Table 1: Geographical Area Overall

Year	Area
2018-19	206934
2019-20	206934
2020-21	206934

In the year 2020-21, cultivated land will account for around 69.37% of the total area (143566 Hect.). Out of entire geographical forest cover 1.71%, barren area shares 1.71%, uncultivable land and area not suitable for agriculture has been identified 1.42% throughout 2020- 21. The area under cultivation decreased by 0.5% from 2018-19 to 2019-20, and by 0.25 % from 2020-21 to 2021-22. The observation and studies of author reveals that these decreases have been produced owing to plotation or conversion of agricultural land in to communities. In addition, uncultivated land decreased to 299 hectares (9.26%) in 2019–20 but climbed by the same margin the following year. Possible causes include the conversion of formerly unusable land to agricultural use. In similar manner barren land rose to 58hectares (1.43%) during 2018-19 may be owing to some natural catastrophe while reduce to 541hectares (13.22%) in 2020-21 on account of acclimatization into cultiva- ble land. As a result of contemporary coGajraulalization, more and more people are opting to live in rural areas rather than crowded cities and towns. That's why in 2019–20 the settled area will cover 138 hectares (0.35 %) and in 2020–21 it'll cover 195 ha (0.50 %).[5]

The following table shows the general land-use pattern per block for the years 2020–21.

Table 2: 2020–21 Block-by-Block General Land Use Pattern (In Hectares)

Blocks	Cultivated Land	Uncultivated Land	Forest	Settlement	Barren Land	Pasture Land
Dhanaura	12656	456	19282	4493	243	6
Hasanpur	16517	96	22617	3446	236	0
Gangeshwari	17170	592	23212	3817	126	71
Gajraula	10961	557	26888	9911	1923	15
Joya	16699	361	23041	3211	246	19

For the 2003–2004 growing season, the table below shows the distribution of single-crop and multiple-crop areas per block.[6]

Table 3: The Allocation of Farmable Land

Blocks	OneCroppedarea		MultiCroppedarea		NetCroppedarea	
	%of netcropped area	Total	% of netcropped area	Total	%	Total
Gangeshwari	1.11	201	98.88	17766	11.98	179667
Hasanpur	38.41	6640	61.58	10643	11.52	17283
Joya	30.10	5250	69.89	12188	11.63	17438
Gajraula	19.90	2249	78.32	8850	7.53	11299
Dhanaura	13.68	1812	86.31	11432	8.83	13244
TotalRural	28.29	42124	71.70	106770	99.32	148894
TotalUrban	-5.84	-59	105.84	1068	0.67	1009
GrandTotal	28.06	42065	71.93	107838	72.50	149903

The seasonal distribution of farmable land i.e.

Kharif Crop Season

In the Amroha region, the Kharif harvest season is one of the most significant times for farming. In 2020-21, it inhabited about 129559 ha (90.24 percent). This agricultural season's planting begins with the commencement of monsoon, usually in the final week of June or the first week of July. According to table 3.5, the kharif crop season has more farmed land and is prioritized over the rabi and zaid crop seasons. The key characteristics of agriculture are its "extremely high man- land ra- tio," high degree of labor intensiveness, large percentage of female labor in agricultural operation, and very tiny farms seldom reaching several hectares. Kharif crops mostly consist of rice, jowar, bajra, and maize.[7]

Rabi CropSeason

After the kharif harvest season, the Rabi harvest season begins. The importance of the Rabi crop season makes for a sizable quantity of land dedicated to growing this food. In 2020-21, the table indicates that Rabi crop area will be 90420 ha (62.98%). From January through December, it supplies the farmer with all the oil seeds, lentils, food grain, fodder, etc. that he needs. With the exception of a small number of late types, Rabi crops are typically cultivated from the end of October to the beginning of November. It can be seen from the data that in 2020-21, wheat occupied 76121 hectares (53.2%) of the total area. Rabi is the most important harvesting season, and this crop is a top performer. Topping the Rabi crop list is wheat, followed by oil seeds (1.69%) and barley (0.41%).[8]

ZaidCropSeason

Zaid is a cash crop that farmers use as an additional income source. Zaid crop farming has played a significant role throughout history and continues to do so now. This is especially true in the peri-urban and peri-rural areas, where irrigation is often

required at least twice weekly. Increasing population, better irrigation and transportation systems, and higher prices have all contributed to a rise in Zaid crop production. Pumpkin, Arvi, Karaila, Cauliflower, Green chiles, Brinzals, Radish, and Carrot are among the featured veggies.[9]

Table 4: Seasonal Distribution Of Farmable Land

Year	Net AreaSown	ZaidCrop	RabiCrop	KharifCrop	Net IrrigatedArea	Land Pre-paredforSu-garcane
2012-13	145943	8641	88219	130768	226589	75
2013-14	147467	8369	87371	130315	225973	26
2014-15	149903	8839	715201	133654	257684	47
2015-16	146268	9051	89724	132567	231342	4
2016-17	146554	8623	88650	131739	229012	46
2017-18	144684	8987	87541	129964	226494	78
2018-19	143930	8550	86969	132593	228112	48
2019-20	143566	8869	90420	129559	228848	2
2020-21	1412139	9370	93625	128111	231105	0

Distribution of Major Crops:

“Analysis of crop distribution, average yield, and total land area may help farmers maximize their profits by taking advantage of optimal growing circumstances. Whether or whether a certain plot of land is suitable for growing a particular crop, and the percentage of that plot that is planted with that crop, is determined by a number of factors. Number nine: The crop distribution is characteristic of an underdeveloped economy, where all economic needs are assumed to be met by agriculture because of the method in which they are combined. Cultivated land is mostly used for grains, wheat, and sugarcane, but also for fruits, vegetables, and oil seeds.[10]

In the district of Amroha, rice is the most significant crop, accounting for 36% of the cultivated land. This is because water is abundant during this season, and the soil is optimal anywhere there is good drainage and little risk of waterlogging. Wheat takes up a considerable percentage of the land (28%). The percentage of farmland used to grow vegetables is negligible. Besides these cereal grains, some land is used to grow oilseeds like mustered, which are often grown in a rotation with barley and wheat. [11]

Table 5: Major Crops and Their Relative Distribution

Year	Wheat	Sugarcane	OilSeeds	Potato	Rice	Barley
2012-13	71185	61232	2093	4597	21142	1029
2013-14	70297	64885	2023	4787	17552	988
2014-15	95923	65950	2148	5092	19545	1328
2015-16	72749	64548	2358	5423	20309	881
2016-17	71936	64156	2631	5113	21496	818
2017-18	72005	64391	2342	5097	20110	757
2018-19	72554	66459	2112	4462	20669	641
2019-20	76121	63396	2432	4259	24794	589
2020-21	78459	56091	2810	4446	29926	536

The Major Crops Produced

There have been major changes in Uttar Pradesh's cropping pattern and productivity ever since the 'Green Revolution' began in 1966-67. Efforts have been undertaken to compare state and regional shifts in food crop output or yield per hectare for a few specific crops.The majority of the district's principal crops. We only address the following crops.Sugarcane, wheat, potatoes, maize, and oilseeds all show notable increases in both area produced and yield over the course of the thirteen harvests. The area planted with sugarcane has had the greatest rate of productive expansion, at 20% annually.[12]

Crop-by-crop yields are shown over time in a table as well as a graphic.

Table 6: Production by Crop (2019-20)

Crop	Production(InM.Ton)
Oilseeds	2694
Wheat	306071
Sugarcane	3397518
Potato	83443
Barley	2117
Rice	45971

Sugarcane Production Rate per Acre

The amount of sugarcane harvested per acre is on the rise. The native seeds have been replaced with high-yielding kinds of cane. Sugar and Khandsari manufacturing have also played important roles in the economy. Only in 2013–14 (1.14%), 2014–15 (4.94%), and 2016–17 (1.68%) was the cane's declination seen. The output in 2018-19 was 605.2 Q/hectare, and it is expected to drop to 535.92 Q/hectare (1.14%.) in 2019-20. In the 2020-21 school year, it jumped to 582.56, a rise of 8.70%. Information is provided in the table below.[13]

Table 7: Sugarcane Production Rate per Acre

Year	Variation	%Variation	Yield
2012-13			665.08
2013-14	-7.64	-1.14	657.44
2014-15	-32.48	-4.94	624.96
2015-16	6.96	1.11	631.92
2016-17	-106.4	-1.68	525.52
2017-18	66.84	12.71	592.36
2018-19	12.84	2.16	605.2
2019-20	69.28	-1.14	535.92
2020-21	46.64	8.70	582.56

Wheat Production Per Acre

TWheat yields in district Amroha have always been greater than the national average. The yield rose from 34.96Q/hectare in 2012-13 to 36.3Q/hectare in 2013-14. This time the increase was 36.36 Q/ha. Except for 2015-16 (5.63%), 2018-19 (10.31%), and

2020-21 (12.45%), the district's growth rate is consistent (as the table demonstrates).[14]

Table 8: Obtainable Wheat Production

Year	Variation	%Variation	Yield
2012-13			34.96
2013-14	1.34	3.83	36.3
2014-15	0.06	0.16	36.36
2015-16	-2.05	-5.63	34.31
2016-17	0.79	2.30	35.1
2017-18	4.95	14.10	40.05
2018-19	-4.13	-10.31	35.92
2019-20	4.29	11.94	40.21
2020-21	-5.01	12.45	35.2

Rice Production Per Acre:

Evidence for a non-linear distribution of rice output per hectare has been uncovered. Yield was lowest in 2014-2015 (1.88%), highest in 2016-2017 (3.59%), and lowest in 2017-2018 (1.97%). High demand has led to steadily rising rice production. It was discovered that yield per hectare was up 2.58 percent from 2017-18. The average rice harvest per hectare in 2019–20 was 25.27 metric tons, up 7.76 percent from the previous year. In 2020–21, the rate of growth peaked at 8.70%. Table below shows rice yield data on a per hectare basis.[15-16]

Table 9: Rice Production

Year	Variation	%Variation	Yield
2012-13			23.57
2013-14	0.36	1.52	23.93
2014-15	-0.45	-1.88	23.48
2015-16	0.71	3.02	24.19
2016-17	-0.87	-3.59	23.32
2017-18	-0.46	-1.97	22.86
2018-19	0.59	2.58	23.45
2019-20	1.82	7.76	25.27
2020-21	2.2	8.70	27.47

Average Potato Production per Acre:

The potato is a very valuable crop that takes up roughly 291.53Q/Hect of land. In 2012–13, millions of the district's impoverished will require access to potatoes with these qualities in order to eat. Though yield fell by 48.16 percent in 2014–15, it made up lost ground the next year by rising by 66.64%. The average yield in 2019–20 was 226.13 q/ha, up 41.61% from the previous year. The following table provides further information.[17]

Table 10: Potato Production

Year	Variation	%Variation	Yield
2012-13			291.53
2013-14	9.25	3.17	300.78
2014-15	-144.86	-48.16	155.92
2015-16	103.92	66.64	259.84
2016-17	-70.62	-27.17	189.22
2017-18	-25.51	-13.48	163.71
2018-19	-4.03	-2.46	159.68
2019-20	66.45	41.61	226.13
2020-21	43.23	19.11	269.36

CONCLUSION

Agro-based companies modernize agriculture, diversify the rural economy, and increase household income levels. It works closely with the agriculture industry and sources its own raw materials from rural regions (Misra, 1985). Due to favorable climatic conditions & soils for growing a variety of crops, eastern Uttar Pradesh has a significant potential for the development of agro-based companies. Due to its abundant agricultural resources, this area generates a respectable amount of agricultural output. A significant number of companies are built on agricultural goods, creating demand for those items and jobs for the populace. However, agro-based businesses are sadly having a lot of issues and are not entirely able to help rural development. Therefore, it is essential to investigate the many intrinsic issues that agro-based enterprises face and to support agro-based industries for rural development.

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