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GREEN REVOLUTION: CHANGING VILLAGE LAND USE AND CROPPING PATTERNS

(A Case Study of Hisar District, Haryana)

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Abstract

India is the country of agriculture. At present time more than 50% population is agriculture dependent and 15% contribution of agriculture in Gross Domestic Production. After independence India was struggling with food security. But in the 1960 Green Revolution took place in India. It changed the agronomic technology and land use pattern. In this context, the work is an attempt to analyze the changing village land use and cropping pattern in an agriculturally developed district of Hisar in Haryana under impact of Green Revolution. Data for the paper has collected from secondary sources like H.A.U. hisar and international agency of agricultural development as well as from Patwari Records, Revenue Records etc. and randomly selected 35 villages. The work bring out that after Green Revolution there is a significance change in village land use and cropping patterns. But the nature of agriculture is totally changed. A few crops are effecting by the Green Revolution.

Keywords: Green Revolution, Gross Domestic Production, Cropping Pattern, Agronomic.

Introduction:

The Green Revolution was the technological response to a world-wide food shortage which became threatening in the period after WWII. The Green Revolution transformed farming practice in many regions of the tropics and sub-tropics where the principal food crops were rice, wheat and maize, but the brief account that follows will be mainly focused on the Indian Sub-continent. The ambivalence which is characteristic of all technology is expressed in this example by undesired ecological consequences, which are well documented, and by socio-economic consequences about which there is much less agreement. From the time of independence in 1947 until 1965, agricultural

production in India was unable to meet the country's needs. Green Revolution brought a quantum jump in the food production in Haryana. It have undergone dramatically change in land use and cropping pattern. In study area found that the agriculture is changed into eco-friendly to commercially.

Objective:

The aim of the paper is to explore the changing village land use and cropping patterns due to Green Revolution in an agriculturally developed especially focus on district Hisar (Haryana).

Study Area:

Hisar is situated between 28'53'45" to 29'49'15" N latitudes and 75'13'15" to 76'18'15" E longitudes. Its climate can be classified as semi-arid and hot. There is no natural drainage in the district but the area is drained by network of Bhakra and Western Yamuna Canal Systems (Gazetter, 1987). Hisar is predominantly an agricultural district. Location of Haryana Agriculture University and Government Livestock Farm (Largest in Asia and second largest in world) at Hisar brought a most spectacular transformation in the agriculture economy of the district.

Data Base and Methodology:

The present paper is based on secondary data which has been captured through the Patwari Records (Lal Kitab) in randomly selected 35 villages. The sample was stratified on the basis of relief, population size and distance from Hisar city and road accessibility. After that a sample from each stratum was drawn using a random table.

The list of selected villages as following in Table no. I:

Sr. No.	Block Name	Village Name	Sr. No.	Block Name	Village Name
1	ADAMPUR	BAGLA	19	HISAR-I	GANGWA
2	ADAMPUR	KABREL	20	HISAR-I	LADWA
3	ADAMPUR	LADWI	21	HISAR-I	MIRKAN
4	ADAMPUR	SISWAL	22	HISAR-I	SATROD KALAN
5	AGROHA	DURJANPUR	23	HISAR-I	SHIKARPUR
6	AGROHA	KIRMARA	24	HISAR-II	MUKLAN
7	AGROHA	KIRORI	25	HISAR-II	NEOLI KALAN

8	AGROHA	THASKA	26	HISAR-II	PANIHAR CHAK
9	BARWALA	BALAK	27	HISAR-II	SHAHPUR
10	BARWALA	JEWERA	28	NARNAUND	BUDANA
11	HANSI-I	DEPAL	29	NARNAUND	PALI
12	HANSI-I	DHAMANA	30	NARNAUND	PETWAR
13	HANSI-I	HAJAM PUR	31	UKLANA	BITHMARA
14	HANSI-I	JAMAWARI	32	UKLANA	LITANI
15	HANSI-II	BADALA	33	UKLANA	PABRA
16	HANSI-II	JEETPURA HANSI-II	34	UKLANA	PARBHUWALA
17	HANSI-II	SISAR	35	UKLANA	SUREWALA
18	HANSI-II	THURANA			

Changing Village Land Use and Cropping Pattern:

Here found that before the Green Revolution there was no any scientific method in agriculture. The purpose was very strait "how to overcome food secrecy". Mainly focus major crops like wheat, bajra, gawar and pulses as well as fodder. After the Green revolution Land use and cropping pattern have undergone a dramatic change which is clear from the table II given below.

Table No. II

Name of the sampled Village	Cropping Pattern	Cropping Pattern
	1961	2016
BAGLA	Wheat, Gram, Mustard, Barley, Methi, Massar, Taramira, Cotton, Bajra, Guar, Moong, Til, Jawar,	Wheat, Mustard, Barseem, Oat, Barley, Methi, Cotton, Bajra, Guar, Moong, Jawar, Arhar, Vegetable and Fruits
KABREL	Wheat, Gram, Mustard, Barley, Methi, Massar, Taramira, Cotton,	Wheat, Mustard, Barseem, Oat, Barley, Methi, Cotton, Bajra, Guar, Moong,

	Bajra, Guar, Moong, Til, Jawar,	Jawar, Arhar, Vegetable and Fruits
LADWI	Wheat, Gram, Mustard, Barley, Methi, Massar, Taramira, Cotton, Bajra, Guar, Moong, Til, Jawar,	Wheat, Mustard, Barseem, Oat, Barley, Methi, Cotton, Bajra, Guar, Moong, Jawar, Arhar, Vegetable and Fruits
SISWAL	Wheat, Gram, Mustard, Barley, Methi, Massar, Taramira, Cotton, Bajra, Guar, Moong, Til, Jawar,	Wheat, Mustard, Barseem, Oat, Barley, Methi, Cotton, Bajra, Guar, Moong, Jawar, Arhar, Vegetable and Fruits
DURJANPUR	Wheat, Gram, Mustard, Barley, Methi, Massar, Taramira, Cotton, Bajra, Guar, Moong, Til, Jawar,	Wheat, Mustard, Barseem, Oat, Barley, Methi, Cotton, Bajra, Guar, Moong, Jawar, Arhar, Vegetable and Fruits
KIRMARA	Wheat, Gram, Mustard, Barley, Methi, Massar, Taramira, Cotton, Bajra, Guar, Moong, Til, Jawar,	Wheat, Mustard, Barseem, Oat, Barley, Methi, Cotton, Bajra, Guar, Moong, Jawar, Arhar, Vegetable and Fruits
KIRORI	Wheat, Gram, Mustard, Barley, Methi, Massar, Taramira, Cotton, Bajra, Guar, Moong, Til, Jawar,	Wheat, Mustard, Barseem, Oat, Barley, Methi, Cotton, Bajra, Guar, Moong, Jawar, Arhar, Vegetable and Fruits
THASKA	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Taramira, Cotton, Bajra, Guar, Moong, Til, Jawar, Jute, Lucern (Green Foodder)	Wheat, Gram, Mustard, Barseem, Oat, Barley, Methi, Rice, Bajra, Guar, Moong, Jawar, Cotton, Fruits and Vegetables
BALAK	Wheat, Gram, Mustard, Barseem, Methi, Massar, Toria, Taramira, Cotton, Bajra, Moong, Til, Jawar, Jute, Arhar	Wheat, Mustard, Barseem, Oat, Rice, Jawar, Bajra, Cotton, Fruits and vegetables
JEWERA	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Taramira, Lucern, Cotton, Bajra, Jawar, Guar, Moong, Til, Sugarcane	Wheat, Mustard, Barseem, Oat, Barley, Cotton, Rice, Jawar, Vegetables
DEPAL	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Toria, Taramira, Cotton, Bajra, Guar,	Wheat, Gram, Mustard, Barseem, Oat, Barley, Methi, Cotton, Rice, Bajra, Guar, Jawar, Moong, Fruits and

	Moong, Jawar, Sugarcane	Vegetables
DHAMANA	Wheat, Gram, Mustard, Barseem, Methi, Massar, Taramira, Toria, Cotton, Bajra, Jawar, Guar, Moong, Til, Jute, Arhar	Wheat, Mustard, Barseem, Oat, Cotton, Jawar, Bajra
HAJAMPUR	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Taramira, Cotton, Jawar, Bajra, Moong, Til, Sugarcane	Wheat, Gram, Mustard, Barseem, Oat, Barley, Cotton, Rice, Maize, Jawar, Bajra, Guar, Moong, Til, Sugarcane, Fruits and Vegetables
JAMAWARI	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Taramira, Toria, Cotton, Bajra, Jawar, Guar, Moong, Til, Jute, Maize, Sugarcane	Wheat, Mustard, Barseem, Oat, Barley, Methi, Cotton, Rice, Bajra, Jawar, Sugarcane, Fruits and Vegetables
BADALA	Wheat, Gram, Mustard, Barseem, Barley, Methi, Toria, Taramira, Cotton, Bajra, Jawar, Guar, Moong, Til, Sugarcane, Jute, Arhar	Wheat, Mustard, Barseem, Oat, Barley, Cotton, Rice, Jawar, Vegetables
JEETPURA	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Cotton, Bajra, Jawar, Guar, Moong, Til, Sugarcane	Wheat, Mustard, Barseem, Oat, Barley, Cotton, Rice, Jawar, Vegetables
SISAR	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Toria, Taramira, Cotton, Rice, Bajra, Guar, Moong, Til,	Wheat, Mustard, Barseem, Oat, Barley, Cotton, Rice, Jawar, Vegetables
THURANA	Wheat, Gram, Mustard, Barseem, Barley, Bajra	Wheat, Mustard, Barseem, Oat, Barley, Cotton, Rice, Jawar, Vegetables
GANGWA	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Bajra, Jawar, Guar, Moong, Til, Sugarcane	Wheat, Mustard, Barseem, Oat, Barley, Cotton, Rice, Jawar, Vegetables

LADWA	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Bajra, Jawar, Guar, Moong, Til, Sugarcane	Wheat, Mustard, Barseem, Oat, Barley, Cotton, Rice, Jawar, Vegetables
MIRKAN	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Bajra, Jawar, Guar, Moong, Til, Sugarcane	Wheat, Mustard, Barseem, Oat, Barley, Cotton, Rice, Jawar, Vegetables
SATROD KALAN	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Bajra, Jawar, Guar, Moong, Til, Sugarcane	Wheat, Mustard, Barseem, Oat, Barley, Cotton, Rice, Jawar, Vegetables
SHIKARPUR	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Bajra, Jawar, Guar, Moong, Til, Sugarcane	Wheat, Mustard, Barseem, Oat, Barley, Cotton, Rice, Jawar, Vegetables
MUKLAN	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Bajra, Jawar, Guar, Moong, Til, Sugarcane	Wheat, Mustard, Barseem, Oat, Barley, Cotton, Rice, Jawar, Vegetables
NEOLI KALAN	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Bajra, Jawar, Guar, Moong, Til, Sugarcane	Wheat, Mustard, Barseem, Oat, Barley, Cotton, Rice, Jawar, Vegetables
PANIHAR CHAK	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Bajra, Jawar, Guar, Moong, Til, Sugarcane	Wheat, Mustard, Barseem, Oat, Barley, Cotton, Rice, Jawar, Vegetables
SHAHPUR	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Bajra, Jawar, Guar, Moong, Til, Sugarcane	Wheat, Mustard, Barseem, Oat, Barley, Cotton, Rice, Jawar, Vegetables

BUDANA	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Bajra, Jawar, Guar, Moong, Til, Sugarcane	Wheat, Mustard, Barseem, Oat, Barley, Cotton, Rice, Jawar, Vegetables
PALI	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Bajra, Jawar, Guar, Moong, Til, Sugarcane	Wheat, Mustard, Barseem, Oat, Barley, Cotton, Rice, Jawar, Vegetables
PETWAR	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Bajra, Jawar, Guar, Moong, Til, Sugarcane	Wheat, Mustard, Barseem, Oat, Barley, Cotton, Rice, Jawar, Vegetables
BITHMARA	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Bajra, Jawar, Guar, Moong, Til, Sugarcane	Wheat, Mustard, Barseem, Oat, Barley, Cotton, Rice, Jawar, Vegetables
LITANI	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Bajra, Jawar, Guar, Moong, Til, Sugarcane	Wheat, Mustard, Barseem, Oat, Barley, Cotton, Rice, Jawar, Vegetables
PABRA	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Bajra, Jawar, Guar, Moong, Til,	Wheat, Mustard, Barseem, Oat, Barley, Cotton, Rice, Jawar, Vegetables
PARBHUWALA	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Bajra, Jawar, Guar, Moong, Til,	Wheat, Mustard, Barseem, Oat, Barley, Cotton, Rice, Jawar, Vegetables
SUREWALA	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Bajra, Jawar, Guar, Moong, Til, Sugarcane	Wheat, Mustard, Barseem, Oat, Barley, Cotton, Rice, Jawar, Vegetables

Source: Patwari record (Lal Kitab) And International Agency of agriculture (Internet supported)

After the analysis of the survey, it is found that there are positive effects of Green

Revolution on agriculture but that on only few crops. Therefore, both positive and negative effects were seen on the field.

The Important achievements are following:

(i) Increase in the total production of crops.

(ii) Increase in food crops per hectare.

(iii) Increase in use of chemical fertilizers

(iv) Increase in use of HYV seeds,

(v) Increase in use of power tillers and tractors,

(vi) Expansion of irrigational facility.

Wheat and rice got the maximum benefits of Green Revolution but area under coarse cereals and pulses decreased. This fact is revalidated by the current study and this trend is seen in our sample survey. The staple food crops, wheat and rice are now cultivated on commercial scale. The Survey also indicates towards yellow revolution in the district as net sown area under mustard crop increased tremendously in almost all the sampled villages at the cost of toria and taramira, increase in net sown area ranges from double to six times. Sown area increased because of its high demand as mustard oil is used as cooking / editable oil by vast majority of population.

Net sown area under Bajra decreased in almost all the villages. Because of improved facility, coarse cereals were replaced by more profitable alternatives i.e. rice and cotton. There is a sea-change in the pattern of gram cultivation. Earlier, it was cultivated on a large scale in all the sampled villages but now gram cultivation has declined dramatically in villages like Bagla, Kabrel, Ladwi, Siswal, Durjanpur, Kirmara, Kirori, Thaska, Balak, Jewera, Depal. It happened because of improvement in irrigation facilities and availability of high yielding, less risky and more profitable alternatives i.e. wheat and mustard. Moreover, pulses like moth, massar and arhar disappeared from the district because of being less remunerative.

Crops like Toria, Taramira, til and arand almost disappeared from the sampled villages because of commercialization of agriculture. Though being in category of oilseeds, Toria and Taramira disappeared owing to their low productivity and less demand. These were used only for animal feed but these had bitter taste / tinge and were less palatable, so demand decreased in favour of better palatable and profitable mustard crop. Though sown on substitute i.e. plastic. There is not any appreciable change in area under barley and Methi. These are cultivated on a very small scale and are constituent of cattle feed.

Earlier, sugarcane used to be the main crop in some of the villages but now its cultivation has also varnished from the villages like Bith-mara, Depal, Dabra, Majod, Satrod and Siswal in favour of rice and cotton and reduced drastically in villages like Chickanwas, Barwala (Rural), Madanheri, Daulatpur, Gangan Kheri, Khokha and Rakhi. It is an annual crop.

Profit comes once in a year but farmers aspire for more and regular income at least twice in a year. So, people like to switch over to the other more suitable and profitable alternatives i.e. rice, cotton, wheat and mustard. A very interesting change was also noticed during the survey, Lucern, being a perennial, leguminous green fodder crop especially for horses, is no more cultivated nowadays as farmers / rural people have adopted the modern means of transportation. So, now there is no utility of horses as means of transportation and lucern is no more cultivated.

It has too been seen that for maximize profits, regular income and best consumption of available resources, mixed-cropping / intercropping, horticulture, dairying, poultry-farming and fish-farming are being adopted in a scientific way on profit-making sale. People also started growing fruits and vegetables more in villages around the urban centers and on main roads i.e. Gangwa, Ladwa, Mirkan, Satrod Kalan, Shikarpur, Muklan, Neoli Kalan, Panihar Chak.

Thus, the survey indicates that because of Green Revolution people have shifted to higher yielding crops on commercial scale and to boost up their income, they adopted horticulture, floriculture, dairying and poultry-farming on commercial scale.

Conclusion:-

The Green Revolution brought multi-dimensional changes in the rural society of Hisar district of Haryana. The breakthrough in the agriculture in Hisar led to a new era of economic as well as social progress. The Green Revolution which solved the food crisis of nation also gave birth to a new middle and upper middle class of landowners. It changed the income pattern, level of employment and social relationship of the farmers and agricultural laborers. The land use and cropping pattern have undergone a dramatic change after Revolution in the district. Pulses like massar, moth and arhar and oilseeds like toria, taramira and til have almost disappeared from the district; whereas area under pulses like gram and moong has reduced to a considerable extent. Lucern, a green fodder especially fo horses, has lost its importance because of no more use of horses in transportation. Jute is also not grown anymore because of synthetic alternatives available in the market. Cultivation of oat, fruits and vegetables has come into existence. Besides, rice cultivation has been initiated on a large scale in the district depending on irrigation facility. In conclusion the green revolution saved over a billion of people all over the world from famine and provided more food sources and change the land use and cropping pattern.

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