



Green Revolution: Changing Village Land use and Cropping Patterns (A Case Study of Hisar District, Haryana)

Dr. Suman Rani

Assistant Professor, Department of Geography, Govt. College Nalwa (Hisar)

ABSTRACT

This paper attempts to explore the changing village land use and cropping pattern in an agriculturally developed district of Hisar in Haryana under impact of Green Revolution. It has been captured through the fieldwork conducted in randomly selected 23 villages. A well-structured pre-tested schedule was used to collect the information. The survey brings out that after Green Revolution there is a significant change in the village land use and cropping patterns in the district transforming the basic subsistence nature of agriculture into commercial one.

KEYWORDS : land use, cropping pattern, Green Revolution, subsistence, commercial

Introduction

The Green Revolution means revolutionary change in agricultural production and productivity caused by adoption of new agricultural technology in a very short time. This was basically the technological and organizational improvement within agricultural framework (Joshi, 1999). The rapid increase in wheat and rice yields was brought about by improved varieties of seeds combined with the expanded use of fertilizers and other chemical inputs (Hazell, 1985). Based on high yielding variety seeds, chemical fertilizers, pesticides, modern agricultural implements and tubewell irrigation, a new era emerged in rural and agricultural development. Successful application of advanced technology increased not only the marketable surplus from agriculture but also changed the village land use and cropping patterns. (Sharma and Gupta, 1991).

In this paper, we have taken the case study of Hisar district in Haryana and have seen how land use and cropping patterns have changed under impact of Green Revolution.

Objective

This paper purports to explore the changing village land use and cropping patterns due to Green Revolution in an agriculturally developed district of 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 (Gazetteer, 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 agricultural economy of the district.

Data base and Methodology

The present paper is based on the primary data which has been captured through the fieldwork conducted in randomly selected 23 villages. The sample was stratified on the basis of relief, population size, distance from Hisar city and road accessibility. After that a sample from each stratum was drawn using a random table. A well-structured pre-tested schedule was used to collect the information. The schedule was related to village level information regarding land-use and cropping pattern.

The list of selected villages, where fieldwork was conducted, along with their Hadbast number is as follows: Kherampur(21), Siswal (174), Chikanwas (144), Kirmara(57), Mater Sham (170), Balsmand (22), Dhiranwas (53), Daha (10), Dabra (164), Satrod Khurd (155), Khokha (28), Kumbha Khera (75), Barwala (Rural) (128), Rakhi Khas (76), Majod (111), Depal (118), Kheri Gangan (123), Bhatol Jatan (10), Bass Akbarpur (96), Madanheri (58), Chuli Kalan (7), Daulatpur (124) and Bithmara(85).

Changing Village Land Use and Cropping Pattern

Prior to Green Revolution, agriculture was of subsistence nature but

after Green Revolution Land use and cropping pattern have undergone a dramatic change which is clear from the table 1 given below.

Table 1 District Hisar: Change in cropping pattern 1966-2011

Name of the sampled village	Cropping pattern	
	1961	2011
Kherampur (21)	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Taramira, Cotton, Bajra, Guar, Moong, Til, Jawar, Moongphali, Arhar	Wheat, Mustard, Barseem, Oat, Barley, Methi, Cotton, Bajra, Guar, Moong, Jawar, Arhar, Vegetable and Fruits
Siswal (174)	Wheat, Gram, Mustard, Barseem, Methi, Cotton, Bajra, Guar, Moong, Til, Sugarcane, Jawar, Moongphali, Arhar, Taramira, Massar, Toria, Lucern, Jute	Wheat, Mustard, Barseem, Methi, Oat, Barley, Cotton, Bajra, Guar, Sugarcane, Rice, Jawar, Maize, Fruits and Vegetables
Chikanwas (144)	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Taramira, Toria, Cotton, Bajra, Guar, Moong, Til, Jawar, Sugarcane, Maize, Jute	Wheat, Mustard, Barseem, Oat, Barley, Methi, Cotton, Rice, Bajra, Jawar, Sugarcane, Fruits and Vegetables
Kirmara (57)	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Taramira, Toria, Cotton, Bajra, Guar, Moong, Til, Jawar, Jute, Maize, Arhar	Wheat, Gram, Mustard, Barseem, Oat, Barley, Methi, Cotton, Rice, Bajra, Guar, Moong, Jawar, Fruits and Vegetables
Mater Sham (170)	Wheat, Gram, Methi, Mustard, Barseem, Barley, Cotton, Bajra, Guar, Moong, Til, Jawar, Jute	Wheat, Mustard, Barseem, Oat, Barley, Methi, Cotton, Bajra, Guar, Jawar, Sugarcane, Fruits and Vegetables
Balsmand (22)	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Cotton, Bajra, Guar, Moong, Til, Jawar, Moth, Taramira	Wheat, Cotton, Gram, Mustard, Jawar, Barseem, Oat, Barley, Methi, Cotton (Oilseed), Bajra, Guar, Moong, Fruits
Dhiranwas (53)	Wheat, Gram, Mustard, Barseem, Barley, Methi, Toria, Cotton, Bajra, Guar, Jawar, Moong, Arhar, Jute	Wheat, Mustard, Barseem, Oat, Barley, Methi, Cotton, Bajra, Guar, Jawar, Moong, Fruits and Vegetables
Daha (10)	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Taramira, Cotton, Bajra, Guar, Moong, Til, Jawar, Arhar, Jute, Lucern (Green Foodder)	Wheat, Gram, Mustard, Barseem, Oat, Barley, Methi, Rice, Bajra, Guar, Moong, Jawar, Cotton, Fruits and Vegetables
Dabra (164)	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
Satrod Khurd (155)	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

Khokha (28)	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Toria, Taramira, Cotton, Bajra, Guar, Moong, Jawar, Sugarcane	Wheat, Gram, Mustard, Barseem, Oat, Barley, Methi, Cotton, Rice, Bajra, Guar, Jawar, Moong, Fruits and Vegetables
Kumbha Khera (75)	Wheat, Gram, Mustard, Barseem, Methi, Massar, Taramira, Toria, Cotton, Bajra, Jawar, Guar, Moong, Til, Jute, Arhar	Wheat, Mustard, Barseem, Oat, Cotton, Jawar, Bajra
Barwala (128)	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
Rakhi Khas (76)	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
Majod (111)	Wheat, Gram, Mustard, Barseem, Barley, Methi, Toria, Taramira, Cotton, Bajra, Jawar, Guar, Moong, Til, Sugarcane, Jute, Arhar	Wheat, Gram, Mustard, Cotton, Barseem, Oat, Barley, Methi, Guar, Bajra, Fruits and Vegetables
Depal (118)	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Cotton, Bajra, Jwar, Gwar, Moong, Til, Sugarcane	Wheat, Gram, Mustard, Barseem, Oat, Barley, Cotton, Rice, Jawar, Guar, Moong, Vegetables
Kheri Gangan (123)	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Toria, Taramira, Cotton, Rice, Bajra, Guar, Moong, Til, Jawar, Jute, Arhar, Sugarcane	Wheat, Mustard, Barseem, Oat, Cotton, Rice, Bajra, Jawar, Vegetables
Bhatol Jatan (10)	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Toria, Taramira, Cotton, Jawar, Guar, Bajra, Moong, Til, Jute, Arhar	Wheat, Mustard, Barseem, Oat, Barley, Cotton, Rice, Bajra, Jawar, Maize, Fruits and Vegetables
Bass Akbarpur (96)	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Toria, Taramira, Cotton, Bajra, Jawar, Moong, Jute, Sugarcane	Wheat, Mustard, Barseem, Oat, Barley, Methi, Cotton, Rice, Bajra, Jawar, Sugarcane, Vegetables
Madanheri (58)	Wheat, Gram, Mustard, Barseem, Barley, Methi, Taramira, Cotton, Bajra, Jawar, Guar, Moong, Til, Sugarcane, Jute, Arhar, Lucern	Wheat, Mustard, Barseem, Oat, Cotton, Rice, Bajra, Jawar, Sugarcane, Fruits and Vegetables
Chuli Kalan (7)	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Taramira, Cotton, Jawar, Guar, Bajra, Moong	Wheat, Gram, Mustard, Barseem, Oat, Barley, Methi, Cotton, Bajra, Jawar, Guar, Moong, Fruits
Daulatpur (124)	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Toria, Taramira, Cotton, Bajra, Jawar, Guar, Moong, Til, Sugarcane	Wheat, Mustard, Barseem, Oat, Barley, Cotton, Rice, Bajra, Guar, Til, Moong, Jawar, Sugarcane, Fruits and Vegetables
Bithmara (85)	Wheat, Gram, Mustard, Barseem, Barley, Methi, Massar, Taramira, Cotton, Bajra, Guar, Jawar, Moong, Til, Sugarcane	Wheat, Mustard, Barseem, Oat, Barley, Methi, Cotton, Rice, Bajra, Moong, Jawar, Fruits and Vegetables

Source: Field Survey Conducted during November 2010 to March 2011.

Note: i) Crops shown in bold letters in Column of 1961 cropping pattern are no more in 2011 in the respective villages after Green Revolution.

ii) Crops shown in bold letters in column of 2011 cropping pattern have been added later on after initiation of Green Revolution in the respective villages.

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 net sown area of wheat increased in all the sampled villages i.e. 30 fold in village Chikanwas, 7 fold in village Khokha, 6 fold in village Khairampur, 5 fold in villages Dhiranwas and Majod, 4 fold in Siswal, Madanheri and Dabra villages, 3 fold in Kirmara, Rakhi Khas, Bass Akbarpur, Balsmand, Mater sham, Daulatpur, kumbha Khera, Barwala (rural) and Siswal villages, two fold in Bhatol, Gangan Kheri, Depal, Daha and Bithmara villages. Rice cultivation also came into practice in villages Bhatol, Gangan Kheri, Bass, Madanheri, Khokha, Rakhi, Bithmara, Barwala (rural), Depal, Dabra, Majod and Satrod on a large scale as here canal irrigation facility is very good and is also supplemented by tubewells. Earlier, rice was not cultivated because of lack of sufficient irrigation facilities in the district.

The survey shows that there is tremendous increase in net sown area of cotton, a cash crop i.e. ten fold in village Dhiranwas, eleven fold in village Chikanwas, six fold in villages Majod and Bithmara, five fold in Siswal, four fold in Daha and Kirmara, three fold in Kumbha Khera and Madanheri and two fold in Khairampur, Barwala (rural), Depal, Madanheri, Daulatpur and Siswal villages.

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/edible oil by vast majority of population.

Net sown area under Bajra decreased in almost all the villages. Because of improved irrigation 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 Barwala (rural), Khairampur, Daha, Bithmara, Depal, Majod, Mater Sham, Balsmand, Dhiranwas and vanished from the villages like Kumbha Khera, Chikanwas, Dabra, Madanheri, Satrod, Daulatpur, Bass Akbarpur and Rakhi Khas. 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 small scale, jute also vanished from the fields because of availability of cheaper, stronger and durable synthetic 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 vanished from the villages like Bithmara, Depal, Dabra, Majod, Satrod and Siswal in favour of rice and cotton and reduced drastically in villages like Chikanwas, 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 also been seen that for maximizing profits, regular income and best utilization of available resources; mixed-cropping/intercropping, horticulture, dairying, poultry-farming, bee-keeping and fish-farming are being adopted in a scientific way on commercial scale. People also started growing fruits and vegetables more in villages around the urban centres and on main roads i.e. Kirmara, Khokha, Rakhi, Daha, Bithmara, Barwala (rural), Majod, Satrod, Depal, Dabra, Mater Sham and Gangan Kheri as demand increased because of ever increasing

urban and rural population.

Multicut oat, a green fodder, came into picture and area under Bar-seem, which is a green leguminous fodder, increased owing to the high demand for livestock. 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

In brief, land use and cropping pattern have undergone a dramatic change after Green 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 for horses, has lost its importance because of no more use of horses in transportation. Jute is also not grown any more 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. But Dr. M. S. Swaminathan (2013) has emphasized that there is need to educate farmers for making right use of fertilizers and for that the wave of organic farming will be the right thing to usher in the "evergreen revolution" in the country.

REFERENCES

- Government of India 1987. Haryana District Gazetteers: Hisar, Haryana Gazetteers Organization, Chandigarh. | Hazell, Peter B.R. 1985. "The Impact of the Green Revolution and Prospects for the Future", Food Reviews International, Vol. 1, No. 1, pp. 1-25. | Joshi, Mahesh V. 1999. Green Revolution & Its Impacts, APH Publishing Corporation, Darya Ganj, New Delhi. | Sharma, K.L. and D. Gupta 1991. Country- Town Nexus, Rawat Publication, Jaipur. | Swaminathan, M. S. 2013. "Organic Farming to Usher Evergreen Revolution in Country" an article in Indian Newspaper "The Economic Times" on April 4, 2013. Website:- www.economic-times.co.in. |