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Inter-District variation of input use in Haryana agriculture

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Abstract
The history of Indian agriculture has seen a new agriculture arrangement which has changed the overall traditional cropping pattern in India as well as in Haryana. So, the study is an attempt to examine the inter district variation of input use in Haryana Agriculture. For this purpose, some inputs have been selected namely fertilizers, pesticides, irrigation and seeds. The finding of the study shows the positive fertilizer consumption growth in all districts except the district Panchkula, Faridabad, Palwal, Jind. The district Bhiwani has noticed highest growth rate of 3.5 percent per annum of pesticides consumption per hectare. This study also found that irrigation facilities are increasing continuously in Haryana. It is a good signal for the agricultural development of the state.

Keywords: Agriculture; development; fertilizer; irrigation and pesticide

Introduction

Agriculture in India has a significant history. India ranks second worldwide in the farm output. Agriculture and allied sectors like forestry and fisheries accounted for 14.5 % of the GDP in 2010-11, about 50 % of the total workforce and 10% of export earnings. The economic contribution of agriculture to India's GDP is steadily declining with the country's broad-based economic growth. Still, agriculture is demographically the broadest economic sector and plays a significant role in the overall socio-economic fabric of the country. Haryana is counted among the progressive states of India. The Economy of Haryana is predominantly by agricultural sector. Agriculture has made an important continuation to the development of Haryana, and every aspect of the economic life of the state is influenced by agriculture. Thus, credit of making Haryana as one of the rich state of the country goes mainly to the development of its agricultural sector.

Haryana is now a leading contributor to the country's production of food grains and milk. Agriculture is the principle occupation of the residents of the state. The flat arable land is irrigated with ground water extracted with submersible pumps and tube wells, and by surface water through the extensive canal system. Haryana's contribution to the Green Revolution made India self-sufficient in food production in the 1960s and onwards.

Haryana is one of the wealthiest states of India and has the third highest per capita income in the country with per capita GDP at Rs. 109227 (2011-12). Haryana is also one of the most economically developed regions in South Asia and its agricultural and manufacturing industry has experienced sustained growth since the 1970s. Haryana is India's largest manufacturer of passenger cars, two-wheelers Temperature, water supply (rainfall) and sunlight are the three most important facts of climate and are considered to be the primary determinates of crops husbandry and allied activities. The climate of Haryana is extreme, i.e., very hot in summer and very cold in winter. Rainfall is another important element of climate which is a major source of water supply for irrigation. Except in parts of Ambala, Kurukshetra, Yamunanagar, Kaithal and Karnal districts, the rainfall in Haryana is low and erratic. The maximum rainfall is about 216 centimeters which occur in the foot hill area only. The minimum rainfall is 25 cm. to 38 cm. in the southern parts. About 80% of the rainfall occurs during mansoon seasons, i.e. during months from July to September. Sometimes causing local foods, and the winter rains occur in the months from December to February. Winter rain is caused by western disturbances in the southern parts of the state famine like conditions such as high temperature and low rainfall prevail. So far as the sunlight is concerned, it is sufficient everywhere throughout the year in the state. Intensive and excessive sunshine in early summer affects wheat yield and sugar contents of the sugar cane.

However, mere adoption of optimum crop pattern is not enough. The key to raising productivity and production of crops lies in the technology that is applied to crop cultivation. The HYV seed-fertilizers technology, that has proved successful since its introduction in the mid-sixties, is supposed to be scale-neutral in theory, but, in practice, it favors those farms and areas which are well endowed with irrigation resources or have assured rainfall or access to irrigation facility. The technology succeeds to the degree that this critical condition is fulfilled. This has meant that the technology, from the very start, contained seeds of causing or exacerbating inequalities among farmers and among regions. These variations in growth and development have to be corrected through appropriate area-specific strategies. Otherwise, a large segment of the country will continue to be poor. The need of the hour is to reassess the feasibility of modern technology to rural development. Seeds, fertilizers, irrigation and pesticides constitute the three pillars of modern agriculture and have been central to pushing agricultural-productivity frontier out. The Green Revolution in India was begun by the introduction of the high Yielding Varieties (HYV) of seeds complemented by the effective use of fertilizers and expansion of irrigation. Farmers often see a

direct connect between seeds and fertilizer on the one hand and crop yield on the other. The main aim of the study is to gain in right into the magnitude of efforts needed to achieve balanced agricultural growth in Haryana.

Specific Objective of the Study

The specific objective of the study is:-

1) To examine the inter-district variation of input use in Haryana Agriculture.

Methodology

The present study is based on secondary sources of data. The data obtained from various years statistical abstract of Haryana, Department of Economic and Statistical Analysis, Government of Haryana, Chandigarh. Regarding the methodology of the study, compound growth rate has been used for different purposes. The compound growth rate of inputs has been worked out by this function.

$Y = a\ (1+r)^t$

Where *Y* stands for inputs (fertilizer, pesticides and irrigation)

r is compound growth rate

a is constant

t denotes time

Result and Discussion

The furnished results related to the inter-district variation of input use in Haryana agriculture have been analyzed and presented through following heads:

Table 1: Analysis of Inter-District variation in Fertilizer (000 tones)

Sr. No.	Districts	Fertilizer	CGR
1	AMBALA	903	1.8%
2	PANCHKULA	953	-0.6%
3	YAMUNANAGAR	1069	2.8%
4	KURUKSHETRA	1436	0.4%
5	KAITHAL	1625	1.5%
6	KARNAL	3122	13.6%
7	PANIPAT	1350	0.6%
8	SONIPAT	1437	4.9%
9	ROHTAK	938	1.3%
10	JHAJJAR	358	1.6%
11	FARIDABAD	857	-3.6%
12	PALWAL	294	-1.0%
13	GURGAON	490	-1.3%
14	MEWAT	168	2.9%
15	REWARI	669	3.4%
16	MAHENDERGARH	587	1.7%
17	BHIWANI	1255	6.6%
18	JIND	1567	-7.1%
19	HISSAR	2054	0.0%
20	FATEHABAD	1324	5.6%
21	SIRSA	2334	2.1%

Source: Statistical Abstract of Haryana (Different Issue)

Table No. 1 reveals the inter-district variation of fertilizer consumption per hectare in Haryana. The compound growth rate ranges from 13.6 percent to -7.1 percent. The fertilizer consumption growth is positive in all the districts of the study except the district Panchkula, Faridabad, Palwal and Jind. The district Karnal has registered the highest growth rate of 13.6 percent per annum of fertilizer consumption per hectare and the district Jind shows the lowest growth rate of -7.1 percent per annum of fertilizer consumption. District Hisar shows the negligible growth rate of zero percent per annum of fertilizer consumption. It may be concluded that those districts which have negative compound growth rate should improve the position so that they can help in the growth of the agriculture sector.

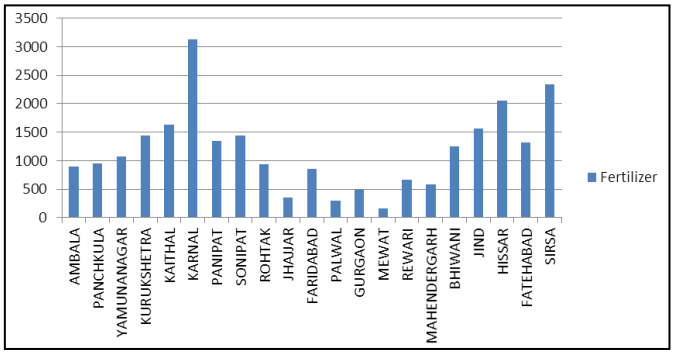

Fig 1: Inter-District variation in Fertilizer (000 tones)

Table 2: Analysis of Inter-District variation in Pesticide (000 tones)

Sr. No.	Districts	Pesticide	CGR
1	AMBALA	7050	-3.6%
2	PANCHKULA	----	0.0%
3	YAMUNANAGAR	6206	-1.1%
4	KURUKSHETRA	7131	-4.7%
5	KAITHAL	7765	-2.0%
6	KARNAL	9634	-2.6%
7	PANIPAT	7505	0.8%
8	SONIPAT	7307	-1.3%
9	ROHTAK	2243	-4.3%
10	JHAJJAR	1215	-0.2%
11	FARIDABAD	5614	-2.7%
12	PALWAL	-----	
13	GURGAON	2158	-6.3%
14	MEWAT	-----	
15	REWARI	2685	-12.5%
16	MAHENDERGARH	2209	-12.5%
17	BHIWANI	4972	3.5%
18	JIND	5544	-2.7%
19	HISSAR	9757	-2.2%
20	FATEHABAD	5729	-6.4%
21	SIRSA	13445	-3.0%

Source: Statistical Abstract of Haryana (Different Issue)

Table No. 2 shows that the inter-district variation in consumption of pesticides in Haryana. The compound growth rate ranges from 3.5 percent to -12.5 percent. It is negative in all of the districts except districts Panipat and Bhiwani. The district Bhiwani has noticed highest growth rate of 3.5 percent per annum of pesticides consumption per hectare. Districts Rewari and Mahendergarh have registered the lowest growth rate of -12.5 percent per annum of fertilizer consumption. District Rewari and Mahendergarh has found negative growth rate of -12.5 percent of pesticides consumption per hectare. Districts Panchkula, Palwal and Mewat show the zero percent per annum growth rate of pesticides consumption per hectare. It may be concluded that majority of districts have negative compound growth rate so that those districts have negative growth rate should improve the position because of pesticides prevent and control insect pests and diseases in fields crops.

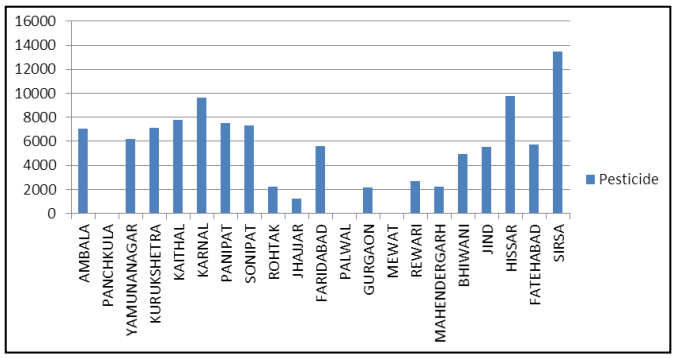

Fig 2: Inter-District variation in Pesticde (000 tones)

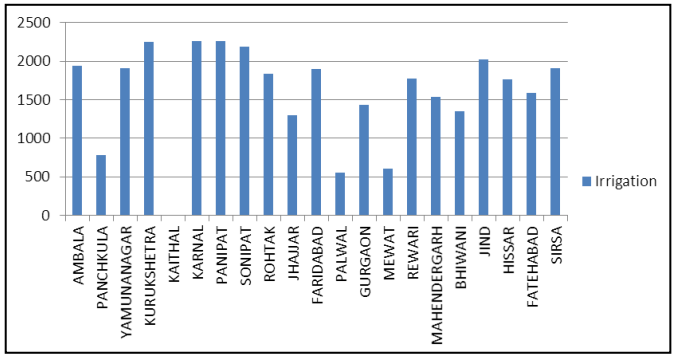

Fig 3: Inter-District variation in irrigation (000 hect.)

Table 3: Analysis of Inter-District variation in irrigation (000 hect.)

Sr. No.	Districts	Irrigation	CGR
1	AMBALA	1937	2.6%
2	PANCHKULA	784	2.6%
3	YAMUNANAGAR	1907	1.0%
4	KURUKSHETRA	2248	-0.1%
5	KAITHAL	----	0.0%
6	KARNAL	2261	0.0%
7	PANIPAT	2256	0.1%
8	SONIPAT	2193	0.5%
9	ROHTAK	1832	0.4%
10	JHAJJAR	1302	1.9%
11	FARIDABAD	1895	1.7%
12	PALWAL	557	1.6%
13	GURGAON	1433	4.2%
14	MEWAT	603	6.7%
15	REWARI	1777	0.7%
16	MAHENDERGARH	1538	1.3%
17	BHIWANI	1347	1.3%
18	JIND	2027	0.4%
19	HISSAR	1763	0.4%
20	FATEHABAD	1590	0.8%
21	SIRSA	1906	0.2%

Source: Statistical Abstract of Haryana (Different Issue)

Table No. 3 highlights that inter-district variation in irrigation is a ratio of total cropped area. The compound growth rate ranges from 6.7 percent to -0.1 percent. It is positive in all districts of the study except district Kurukshetra. This shows that in Haryana irrigation facilities are increasing continuously. It is a good signal of agriculture development. District Hisar and Jind shows the same growth rate .04 percent per annum of irrigated area as a ratio of total cropped area. Districts Ambala, Panchkula and Bhiwani, Mahendergarh also have a same growth rate of 2.6 percent and 1.3 percent per annum of irrigated area, as a ratio of total cropped area. We conclude that growth rate of irrigation is positively in the agriculture sector in Haryana. It is good if the position of irrigation can maintain in the future year also. Because an increase in agriculture production and productivity depend on a large extent on the irrigation.

Conclusions

The present paper concludes that the fertilizer consumption growth is found positive in all the district of the study except some districts. District Hisar shows the negligible growth rate of zero percent per annum of fertilizer consumption. In the case of pesticides, this paper concludes that mostly districts have negative compound growth rate while irrigation facilities are increasing continuously. It is positive in all districts except district Kurukshetra. The growth rate of fertilizer and irrigation is reported positive in agriculture sector of Haryana. It is also good if the position of fertilizer and irrigation can remain same in future. Because increase in agriculture production and productivity depend on large extent on the fertilizer and irrigation.

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