Impact of Modern Farm Practices on Agricultural Productivity in the State Of Uttarakhand

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Abstract ***Indian agriculture had reached the stage of development and maturity much before the advanced countries of the world embarked on the path of progress. Research and modern agri-infrastucture determine the agriculture productivity. In this paper we have carried the linkage between agri-infrastucture and modern farm practices on agriculture productivity of Uttarakhand. Uttarakhand, one of the newly farmed states of India has been chosen for the present study. In Uttarakhand some district like Udham Singh Nagar and Haldwani have the intensity of food grain production higher than all India average for cereals. However other districts are bellowing the all India average. Those districts, which have higher intensity of production, employ modern farm practices. Further it has been argued that for increased production the inter regional imbalance in agri-infrastucture must be eradicated.***

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1. INTRODUCTION

India's agriculture has grown up rapidly enough in recent decades. Food crises of the early 1960's has been changed into the food surpluses of early 1990's even though the population has grown by 424 million between 1963 and 1993. depite national food surplus, wide spread poverty and hunger remains the problem because the growth of agriculture and national economy have not adequately benefited the poor (Pradhan and Navak, 2002). However policy reform alone is not enough to increase the agricultural growth and to make it more clear Figure.

The policy reform must be accommodated by appropriate and efficient investment in public goods such as rural infrastructure, irrigation, agricultural research and extension and the education and health of rural people. Infrastructure is generally defined as the physical framework of facilities through which goods and services are provided to the public (Khaddar 1998)

The principal sources of high productivity in modern agriculture are a combination of high technology and appropriate farm practices. This is clear in (fig1) keeping this in view, the present study makes and attempts to study the regional variation among agri-infrastucture, modern farm practices and agricultural productivity in the agrarian economy of Uttarakhand.

2. THE STUDY AREA:

Uttarakhand extends between 77 34' E and 81 02' E longitudes and between 28 43'N to 31 27' N latitudes. The elevation extends from approximately 300 meters to 7000 meters above sea level. The state is strategically located and form part of the northern boundary of the country having the borders with the Nepal and China. The state of Uttarakhand is spread over 53483 squares km.of land which is 1.67% of the country's total area. There are 84.7 lakh people in the state which is only 0.83% of India's population of 1027 millions as per the provisional census report of 2001.

The state capital is at Dehradun, other districts are Almora, Udham Singh Nagar, Pithoragarh, Nainital, from Kumaun division. Districts of Pauri Garwal, Tehri Garwal, Dehradun, Chamoli, Uttarkashi, Rudraprayg and Haridwar fall under Garwal division. The state is further divided into 95 blocks. It has 15669 habitat village 6561 Gramsabha and 673 Nava Panchayat (Ten five year plan 2002-07 and annual plan 2002-093 Department of Agriculture, Govt. of Uttarakhnad).

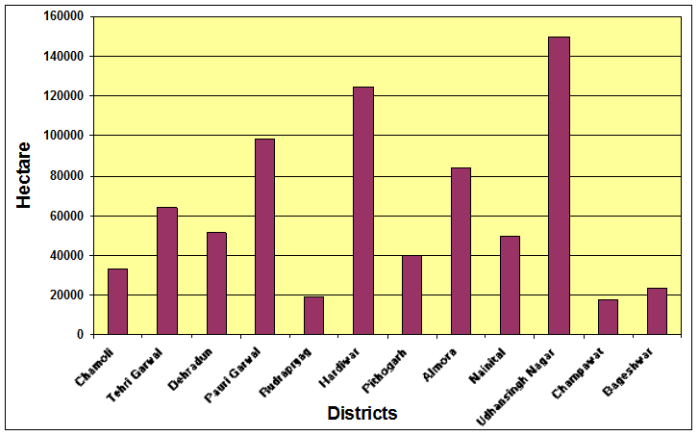
3. AGRICULTURE IN UTTARAKHNAD

Agriculture is back bone of India's economy providing direct employment to about 60% of working people in the country (Economic Survey 2009) and food security to 1.02 million (census 2001). Its contribution to gross domestic product (GDP) is about 27% and about 25% of India's export is agriculture products. Food grains production occupies the most dominant position in India's export are agriculture products. Food grains production occupies the most dominant position in India's agriculture covering over 65% of the gross cropped area (CGA).

Since independence India has made enormous progress in agriculture with the effect that the food shortage of sixties has been transformed into the modern food surplus. However, with the population growing nearly at the rate of 2% per annum (18 to 20 million people being added every year) and the income growth rates accelerating, the demand for food is continuing to grow rapidly. Along with the growth of agriculture the Indian economy has progressed tremendously.

However, the benefit of the booming economy has not reached the poor. More over, with strong growth of income and a projected addition of another 325 million people by 2020 total cereal demand in India is projected to grow by nearly 85 million metric tons. This is an increase in production more than 50% from the base year 1995 (Rose grant et al. 200)

Figure : 1 Net Growing area district wise Year 1998-99



Source: Tenth five year plan (2002-07) and annual plan 2002-03, Deptt. Of Agriculture, Govt. of Uttarakhnd, Dehradun, 2002.

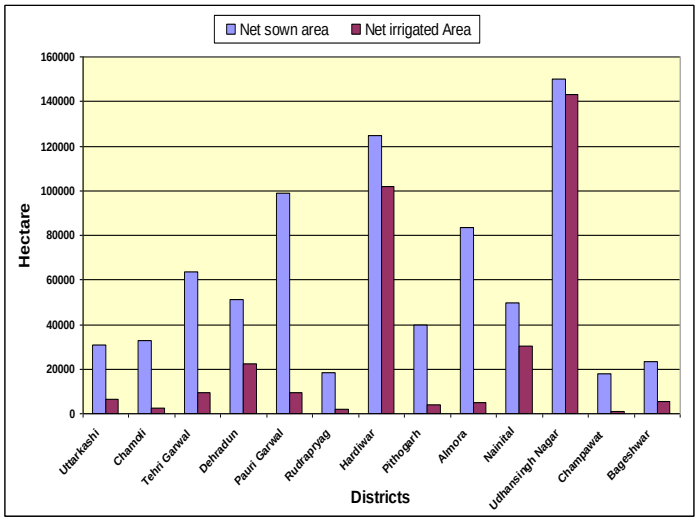
Between 1971-2001 the cultivated area under food grains was between 121 to 131million hectares in which rice, wheat and millets covered 103 to 106 million hectares. Pulses around 22 million hectares. The country's food grain production is steadily increasing. In 1971-2001 the production was 108.42 million tones, in 2001-02 production increased to 212.03 million tones (Agricultural statistics at a glance 2003). On the other hand food grains production of Uttarakhand in the year 1999-2000 was 17.,88 at/hectare for cereals. 7.37 at/hectare for pulses and cereal productivity was 18.21 at/hectare (Tenth Five Year Plan 2002-07). Out of 53.48 lakh hectare reported total areas only 7.80 lakh hectares is under cultivation which is 14.6% of the total area (Figure-1). Hill region covers 4.43 lakh hectares (56.8%) and plain region covers 3.37 lakh hectares (43.7%). The irrigated land in the hills of Uttarakhnad is around 10% whereas in plains it is around 85-90-%. Fertilizers consumption is around 5kg/hec in hills whereas in plains it is 69.10kg/hec. Production of cereals in hills region is 8.64 lakh M.T. and in plains it is 9.53 lakh M.T. Productivity in hills is 13.05 at/hec and in plains it is 9.53 lakh M.T. Productivity in hills is 13.o\05 at/hec and in plains it is 28.40 at/hec. In hills 90% cultivated land is rain fed and fertilizers consumption is also very low (Tenth Fiver Year Plan 2002-07).

Figure 2 clearly defines that in Pithoragarh and Garwal the net growing area is more than Dehradun and Nainital but percentage of irrigated area is 60.95% in National, 44.04% in Dehradun, 9.47% in Pauri and 9.75% in Pithoragarh. The net irrigated area of the state stands at 342283 hec (1998-99). The net irrigated to net sown area for the state is 44.65%.

4. THE INFRASTRUCTURE IN UTTARAKHAND

Infrastructure is generally defined as the physical framework of facilities through which goods and services are provided to the public (Khader 1998). In the long run country needs to develop new mechanism to provide protection to farmer's income. Due to changes taking place in consumption of food, there is lot of emphasis to develop technology. The principal sources of high productivity in modern agriculture are the following factors:

Figure- 2: District wise sown & irrigated area (1998-99)



Source: Tenth five year plan (2002-07) and annual plan 2002-03, Deptt. Of Agriculture, Govt. of Uttarakhnd, Dehradun, 2002.

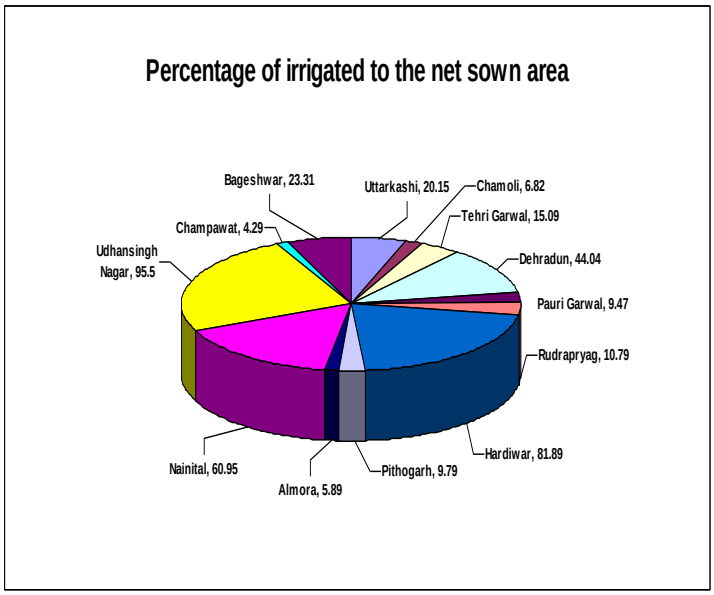
A. FERTILIZERS

Fertilizers are one of the most critical inputs in agriculture. The consumption of chemical fertilizers in the state is 69.10 kg/hectare a against national average of around 93.33 kg/hectare. This is defined in Figure 3. the 1998-99 Uttarakhand fertilizer consumption is 132 thousand metric tons against the all India fertilizer consumption of 6798 thousand metric tons. The percentage of fertile uses is 0.8% of the all India use. Distribution of chemical fertilizer for the year 200-01 in the state of Uttarakhand is sodium(K) 1918 metric tons, potassium (P) 5114 metric tons and Nitrogen (N) 12336 metric tons while the Uttarakhand consumption of fertilsers is nitrogen 120 metric tons potassium 32.50 metric tons and sodium 9.50 metric tons.

B. IRRIGATION

Most of the agriculture in the state is rained. The most irrigated area of the state stands as 342283 hectares (1998-99). The net irrigated area to net sown area for the state is 44.65%. this has been shown in Figure 2. the net growing area in Tehri Garwal, Almora and Pauri Garwal is more than the other areas like Dehradun and Nainital. The net irrigated area in Tehri Garwal is 9727 hectare and net sown area is 63783 hectare. The percentage of irrigated to the net sown area is 20.15%. similarly this percentage for Almora is 5.89, for Pauri Garwal 9.47%, for Nainital 60.95%. Such statistics has been given for all other districts of the state in Figure 2.

Figure- 3: Percentage of irrigated to the net sown area



Source: Tenth five year plan (2002-07) and annual plan 2002-03, Deptt. Of Agriculture, Govt. of Uttarakhnd, Dehradun, 2002.

C. ELECTRICITY

The level of modern farm practice on all India basis and in the state of Uttarakhand. In 1998-99 had 12 electrified villages while on all India basis it was 505 villages. The percentage of village electrification in Uttarakhnad is 2.4%. The Uttarakhand electric consumption in (1998-990 was 202crore kilo watt while the all India electric consumption was 31240 crore kilo watt in the same year. The percentage of electric consumption in Uttarakhand is 0.6%.

5. DISCUSSION AND CONCLUSION.

The state of Uttarakhnad occupies 1.67% of the total area of India and the percentage of population is .83% only. The all India cropping intensity is 129% while that of Uttarakhand alone is 158.7%.

In Uttarakhand the highest cropping intensity is in district of Haridwar and Udham Singh nagar. Most of the part of Uttarakhnad contains hills while Haridwar and Udham Singh Nagar are the plains. The plains of above two districts occupy 35% of land area. The irrigated land in the hills of Uttarakhand is about 10% while in the plains it is 85-90%. The state's average use of fertilizers is about 69.10 kg/ hectare while in the hills it is only about 2kg/ hectare. Thus most of the fertilizers in the state are used in the plains.

The productivity of plains (28.40 quintal/ hectare) is about two times the national productivity of hills (13.05 quintal/ hectare).

The infrastructure and modern farm practices in the plains are much higher than the hills. At the same time the productivity of hills are very high. This shows that the modern farm practices and the infrastructure have a direct bearing on the agricultural production.

It is suggested that the infrastructure of the hills of Uttarakhnad be increased and the farmers be educated to use modern farm practices so that over all development of thee state in agricultural sector be achieve.

ANNEXURE

Table- 1

Sr. No.	District	Net Growing area (in hectare) Year 1998-99
1	Uttarkashi	30975
2	Chamoli	32903
3	Tehri Garwal	63783
4	Dehradun	51002
5	Pauri Garwal	98767
6	Rudrapryag	18519
7	Hardiwar	124503
8	Pithogarh	39702
9	Almora	83511
10	Nainital	49486
11	Udhansingh Nagar	150024
12	Champawat	17656
13	Bageshwar	23286
	Total	784117

Source: Tenth five year plan (2002-07) and annual plan 2002-03, Deptt. of Agriculture, Govt. of Uttarakhnd, Dehradun, 2002.

Table- 2: District wise irrigated area (hectare) (1998-99)

Sr. No.	District	Net sown Area	Net irrigated Area	Percentage of irrigated to the net sown area
1	Uttarkashi	30975	6241	20.15
2	Chamoli	32903	2244	6.82
3	Tehri Garwal	63783	9627	15.09
4	Dehradun	51002	22461	44.04
5	Pauri Garwal	98767	9351	9.47
6	Rudrapryag	18519	1999	10.79
7	Hardiwar	124503	101956	81.89
8	Pithogarh	39702	3869	9.79
9	Almora	83511	4916	5.89
10	Nainital	49486	30163	60.95
11	Udhansingh	150024	143269	95.50

	Nagar			
12	Champawat	17656	758	4.29
13	Bageshwar	23286	5429	23.31
	Total	**784117**	**342283**	**43.65**

Source: Tenth five year plan (2002-07) and annual plan 2002-03, Deptt. Of Agriculture, Govt.of Uttarakhnd, Dehradun, 2002.

Table- 3

Fertilizer consumption in Uttarakhand and in all India (thousand metric ton nutrient)

Fertilizer	**1997-98**		**1998-99**		**1999-2000**		**2001-01**	
	India	Uttarakhand	India	Uttarakhand	India	Uttarakhand	India	Uttarakhand
Nitrogen	10901	101	11354	101.190	11593	108.00	12336	120.00
Phosphorus	3914	23	4112	23.36	29.80	29.80	5114	32.50
Potassium	1373	8	1332	7.860	9.40	9.40	1918	9.50

Sources: Tenth five year plan (2002-07), department of Agriculture, Government of Uttarakhand, Dehradun, 202-03 and Economic Survey 2000-01, Govt. of India, Ministry of Finance, economic Davison.

REFERENCES

- Negi, B. (2001). "Round One to the Lobbyists, Politicians and Bureaucrats." Indian Express, 2 January.
- Negi, S. S. (1995). Uttarakhand: land and people. New Delhi: MD Pub
- Rawat, A. S. (1989). History of Garhwal, 1358-1947: an erstwhile kingdom in the Himalayas. New Delhi: Indus Pub. Co.
- Kandari, O. P., & Gusain, O. P. (Eds.). (2001). Garhwal Himalaya: Nature, Culture & Society. Srinagar, Garhwal: Transmedia.
- PTI. (2002). "Dalai Lama Inaugurates World's Highest Stupa." 28 October.
- "Census Population" (PDF). Census of India. Ministry of Finance India. Retrieved 2008-12-18.
- Uttarakhand Govt. of India, Official website.
- Umachand Handa (2002). History of Uttaranchal. Indus Publishing. ISBN 81-7387-134-5. Excerpts
- Husain, Z. (1995). Uttarakhand movement: the politics of identity and frustration, a psycho-analytical study of the separate state movement, 1815-1995. Bareilly: Prakash Book Depot. ISBN 81-85897-17-4
- Uma Prasad Thapliyal (2005). Uttaranchal: Historical and cultural perspectives. B.R. Pub. Corp., ISBN 81-7646-463-5.
- Vijaypal Singh Negi, Jawahernagar, Post - Agastyamuni,Dist.- Rudraprayag, The Great HimalaysPublication Date- 1998,
- Kumar, P. (2000). The Uttarakhand Movement: Construction of a Regional Identity. New Delhi: Kanishka Publishers.
- "India's Role in World Agriculture". europa.eu. Retrieved 22-08-2001.
- Sengupta, Somini (22 June 2008). "The Food Chain in Fertile India, Growth Outstrips

Agriculture". New York Times. Retrieved 23 April 2010.

- Sankaran, S. "28". Indian Economy: Problems, Policies and Development. pp. 492–493.
- H.A. Mills, J.B. Jones Jr. (1996). Plant Analysis Handbook II: A practical Sampling, Preparation, Analysis, and Interpretation Guide. ISBN 1-878148-052.
- Lal, R. (August 2001). "Thematic evolution of ISTRO: transition in scientific issues and research focus from 1955 to 2000". Soil and Tillage Research 61 (1-2): 3–12