

## Analyse the level of potato productivity in Hooghly district of West Bengal during the time span of 2007-08

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### **Abstract**

*West Bengal ranks second in terms of potato production in India (Department of Agriculture Cooperation, Govt. of India). Hooghly district is one of the leading potato producing districts of West Bengal. The paper attempts to analyse the level of potato productivity in Hooghly district of West Bengal during the time span of 2007-08. The present study is entirely based on the secondary data which have been collected mainly from the District Statistical Handbook, 2008. Crop yield and concentration indices ranking coefficient of Singh (1976) has been used to demarcate the blocks of Hooghly district in terms of potato productivity. The paper reveals that the highest yield index of potato is found in Pursurah block (133.05) and the lowest in Khanakul- II (20.37). The highest concentration index of potato has been recorded in Pursurah (151.05) and the lowest as 22.02 in Serampur-Uttarpara block. The highest level of potato productivity has been found in Pursurah block and the lowest in Balagarh block. To minimise the disparity in potato productivity across the blocks of Hooghly district, special emphasis should be given to the efficient use of modern technological inputs and allocation of fertile alluvial tracts with better use of irrigation.*

**Key words** 1.Crop Concentration, 2.Productivity, 3.Ranking Coefficient, 4. Yield Index.

### **Introduction**

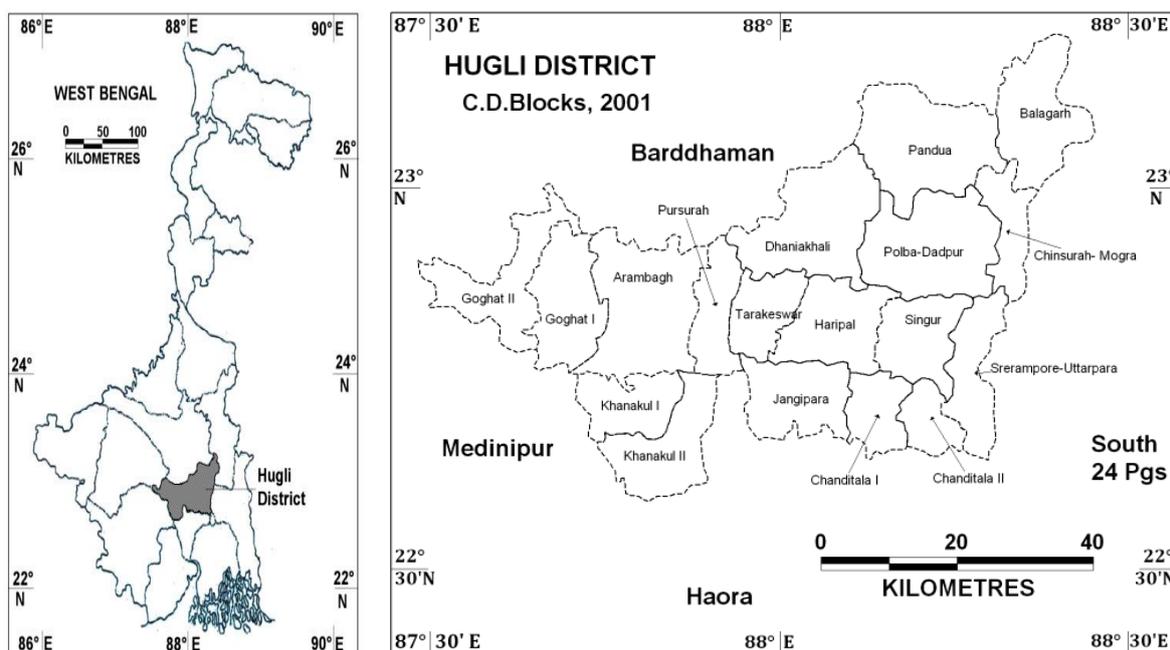
The English word 'Potato' comes from the Spanish term 'Patata'. The word potato may refer either to the plant itself or to the edible tuber. The potato is best known for its carbohydrate content (Approximately 26 gm in a medium potato). The potato was first domesticated in the region of modern day Southern Peru and extreme north western Bolivia between 8000 B.C. and 5000 B.C. It has since spread around the world and become a staple crop in many countries.

In India, along with rice and wheat, potato has gained an important place as a secondary crop. The percentage share of area to gross-cropped area of potato in India has increased from 0.75 in 2005-06 to 0.79 in 2010-11 (Source: Directorate of Economics & Statistics, Department of Agriculture & Cooperation, and Govt. of India). According to the Department of Agriculture Cooperation (Horticulture Division), Govt. of India, the top potato producing state both in terms of area and production is Uttar- Pradesh followed by West Bengal and Bihar as on 22<sup>nd</sup> January, 2015.

### **The study area**

The Hooghly district of West Bengal (Fig. 1 and Table 1) represents an important and remarkable place in the field of agriculture in West Bengal. Though rice is the prime crop of the district, the agricultural

economy largely depends on potato. A significant number of cold storages for potato is located in the district.



**Fig. 1: location of Hooghly district**

**Table 1: Hooghly district at a glance**

Latitudinal Extension	22° 39' 32" N-23° 01' 20" N	Villages	2585
Longitudinal Extension	87° 30' 15" E-88° 30' 20" E	Agro Climatic Zone (NARP)	Old Alluvial Zone
Total Population (2011)	5519145	Geographical Area ('000 hc)	317.09
Sub-divisions	4	Cultivable Area ('000 hc)	220.35
C.D. Blocks	18	Net Sown Area in 2007-08 ('000 hc)	219.91
Gram Panchyats	210	Net Irrigated Area in 2007-08 ('000 hc)	157.52

Source: Official Website of Hooghly district

### Objectives

1. To find out the yield index of potato at block level in Hooghly district in 2007-08.
2. To calculate the concentration index of potato at block level in Hooghly district in 07-08.
3. To delineate the potato productivity at block level in Hooghly district in 07-08.

### Materials and methods

The present study is entirely based on secondary data. The sources of secondary data include different reports of Department of Agriculture, Govt. of India and West Bengal; Official website of Hooghly district and District Statistical Handbook of Hooghly, 2008. The data have been analysed with the help of crop yield and concentration indices ranking coefficient of Singh (1976) and suitable cartographic techniques.

### A brief outline of potato production of west Bengal

Rice and potato are considered to be the principal food crops of West Bengal. It is 2<sup>nd</sup> largest producer of potato in India with an average annual output of 8.9 million tonnes. The state accounts for about 30% of India's potato production. Moderately cool temperature with adequate dew is an ideal condition for good potato harvest in West Bengal. The temporal change in the production and yield of potato in West Bengal is shown in Table 2 and 3 respectively.

**Table 2: production of potato in west Bengal**

Year	2006-07	2007-08	2008-09
Production (Million Tonnes)	5.05	9.90	4.12

Source: Department of Agriculture, Govt. of West Bengal

**Table 3: yield of potato in west Bengal**

Year	2007-08	2008-09	2009-10
Yield (Kg/Hectare)	24704	10677	22500

Source: Department of Agriculture, Govt. of West Bengal

**Table 4: Block wise crop yield and concentration indices ranking coefficient of potato in Hooghly district (2007-08)**

C.D Blocks	Total Area Cropped (Hectare)	Area In Hectares	Production In Million Tonnes	Yield (Kg/hectares)	Yi	Rank Of Yi	Ci	Rank Of Ci	RCYiCi
Dhaniakhali	42419	7207	196369	27246.92	111.16	8	68.95	11	9.5
Pandua	44936	7498	200201	26700.57	108.93	10	67.72	12	11
Balagarh	30330	3738	60316	16135.87	65.83	15	50.02	14	14.5
Chinsurah-Mogra	5670	579	13037	22516.81	91.86	12	41.44	15	13.5
Polba-Dadpur	43537	7498	175588	23417.95	95.54	11	69.90	10	10.5

<b>Tarakeswar</b>	22103	7172	229048	31936. 37	130. 30	3	131. 69	2	2.5
<b>Haripal</b>	30636	8172	222134	27182. 35	110. 90	9	108. 26	3	6
<b>Singur</b>	22706	4936	91983	18635. 19	76.0 3	14	88.2 3	8	11
<b>Jangipara</b>	24334	5194	156484	30127. 79	122. 92	5	86.6 3	9	7
<b>Chanditala-I</b>	13179	1051	30427	28950. 81	118. 11	7	32.3 7	16	11. 5
<b>Chanditala-II</b>	3672	258	5655	21918. 91	89.4 2	13	28.5 2	17	15
<b>Serampur-Uttarpara</b>	774	42	591	14071. 00	57.4 1	16	22.0 2	18	17
<b>Goghat-I</b>	27673	4367	142090	32537. 11	132. 75	2	64.0 5	13	7.5
<b>Goghat-II</b>	36134	8395	260683	31052. 13	126. 69	4	94.2 9	5	4.5
<b>Arambagh</b>	48844	11699	349970	29914. 52	122. 05	6	97.2 1	4	5
<b>Khanakul-I</b>	29109	6616	69596	10519. 37	42.9 2	17	92.2 4	6	11. 5
<b>Khanakul-II</b>	12973	2831	14138	4993.9 5	20.3 7	18	88.5 6	7	12. 5
<b>Pursurah</b>	20342	7571	246903	32611. 70	133. 05	1	151. 05	1	1

**Source: District Statistical Handbook of Hooghly, 2008 and Computed by authors**

$Y_i$  is the crop yield index

$C_i$  is the crop concentration index

$RCY_iC_i$  is the crop yield and concentration indices ranking coefficient

The highest crop yield index has been recorded as 133.05 in Pursurah block and the lowest as 20.37 in Khanakul-II. On the basis of block wise crop yield index (Table 4), Hooghly district has been categorised into three distinct micro regions i.e. high, moderate and low yield index of potato (Table 5).

**Table 5: block wise crop yield index of potato in Hooghly district (2007-08)**

Categories	Crop Yield Index (Yi)	C.D. Blocks
<b>High</b>	More than 110	Dhaniakhali, Haripal, Jangipara, Chanditala-I, Goghat-I, Goghat-II, Arambagh, Pursurah, Tarakeswar
<b>Moderate</b>	70-110	Pandua, Chinsurah-Mogra, Polba-Dadpur, Singur, Chanditala-II
<b>Low</b>	Less than 70	Balagarh, Serampur-Uttarpara, Khanakul-I, Khanakul-II

**Source: Prepared by authors from Table 4**

The highest crop concentration index has been found as 151.05 in Pursurah block and the lowest as 22.02 in Serampur-Uttarpara. On the basis of block wise crop concentration index of potato, Hooghly district has also been categorised into three distinct micro regions i.e. high, moderate and low crop concentration index of potato (Table 6).

**Table 6: block wise crop concentration index of potato in Hooghly district (2007-08)**

Categories	Crop Concentration Index (Ci)	C.D. Blocks
<b>High</b>	More than 110	Tarakeswar, Pursurah
<b>Moderate</b>	70-110	Singur, Jangipara, Haripal, Goghat-II, Arambagh, Khanakul-I, Khanakul-II
<b>Low</b>	Less than 70	Dhaniakhali, Pandua, Balagarh, Chinsurah-Mogra, Polba-Dadpur, Chanditala-I, Chanditala-II, Serampur-Uttarpara, Goghat-I

**Source: Prepared by authors from Table 4**

#### **Delineation of blocks of Hooghly district on the basis of potato productivity**

On the basis of crop yield index and concentration indices ranking coefficient (Table 4), the blocks of Hooghly district have been delineated into three categories i.e. high, moderate and low (Fig. 2).

#### **Conclusion**

Potato productivity in Hooghly district is characterised by distinct regional variation. Though some blocks enjoy good status in terms of potato productivity but a significant number of blocks display poor productivity as compared with the more developed blocks. Lack of irrigation and technological inputs, low level of communication, low monetary return and fluctuation in market price, locational settings and above all the poverty of farmers are the main reasons behind the low status of potato productivity in those blocks. So proper strategies should be adopted to enhance the overall scenario of potato productivity of the district. Potato has a rich potentiality to act as a raw material for various food processing units. So emphasis should be given for establishing potato based food processing industries in

the district. The govt of West Bengal should encourage the establishment of such industries in the district. Initiatives have already been taken. Agro PE & Pvt. Ltd., a Pailan Group Company have entered into a joint venture with A.F.T./PB conseil of France for setting up a food processing unit in Dhaniakhali, Hooghly to produce potato flakes. Through such initiatives, potato will not only become an important resource for employment generation in Hooghly district, but also contribute to the economy of West Bengal.

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