Impact of Ujjani Irrigation Project on Agriculture Fertilizer Consumption of Solapur District.

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Abstract
Fertilizer is regarded as an important component of Green Revolution. India's Impressive growth in food production has been principally due to widespread use of H.Y .V seeds, Fertilizer, Water technology. Fertilizer is one of the important inputs for achieving high productivity. This is associated with an assured water supply, either through rain or irrigation. The forms chemical as well as physical in which nutrients are to be applied to the soil determine not only their availability but also the use efficiency of fertilizer containing them. The fertilizer doses are based on field experiments and depend on crop variety, Water availability and Soil characterstics.Fertilizer is land saving as well as labor saving input and Its land quality augmenting character has attracted much attentation.The period during the last 28 years has witnessed considerable increase in the use of fertilizers as the key factor for increasing agricultural production. This phenomenon in irrigated parts of the region. The present study spatial variations in consumption of fertilizer have been analyzed. The Secondary data obtained from the record maintained by zilla perished and Agricultural development office of the region. It is observed that there is an increasing trend in the consumption of fertilizer in the region. The Consumption of fertilizer has been increased from 3.13kg/hect to19.43 kg/hect due to substantial development of irrigation. The data thus obtained were analyzed with the help of formula which was employed by jadhav & Shinde to calculate concentration index value of fertilizer consumption per unit area.Karmala, Mangalwedha and Akkalkot have lowest consumption of fertilizer.Pandharpur and Malshriras tehsils were high fertilizer consumption due to the Development of Irrigation facilities

Keywords - Agricultural Development, Fertilizer consumption, Tehsils

Introduction

Fertilizer is regarded as an important component of Green Revolution. India's impressive growth in food production has been principally due to widespread use of fertilizer-water technology HYV seeds. Fertilizer is the important inputs for achieving high productivity, which is associated with an assured water supply either through rain or irrigation, plant-nutrients. The fertilizer doses are based on field experiments and depend on crop variety, water availability and soil characteristics. There are at least sixteen chemical elements, which are essential for the growth and development of all crops. Out of these, carbon (C), hydrogen (H) , Oxygen (O) are obtained by plants (crops) through air and water and the rest through soils, fertilizer and manures over 20 fertilizers are produced and used in India to provide NP and K. All these are solid material in powder,

The period during the last 28 years has witnessed considerable increase in the use of fertilizers as the key factor for increasing agricultural production. This is common phenomenon in irrigated parts of the Solapur district. Most important fact is that favorable government policies have observed that there has been awareness among the farmers regarding the use of fertilizer to enhance the agricultural production in the region.

The Region:

The Solapur district is located in Southern Maharashtra. Its latitudinal extent is from 17Ú 10¢ North to 18Ú 32¢ North and longitudinal is 74Ú 42¢ East to 76Ú 15¢ East. It covers an area of 14886 sq.km. which comprises 11 tehsils and population of about 38, 55,383 as per 2001 census. Fig. No. 1 broadly the Physiography of the district may be grouped into three parts i.1

The Hills and Ghats height between (750-850) meters II) The Foot hills (650-750) meters. III) The Plains and Plateau (below 500-600) meters. The soils vary from deep medium black alluvial of the river tracts and further to poor gray soils in the east. The region is drained by Bhima River and its tributaries Nira, Man, Sina etc.The Bhima River on Ujjani irrigation project is a major irrigation project in solapur district.The Ujjani irrigation project is located in Ujjani village in Madha tehsil. The average annual rainfall in the on district is 584.3 mm. The region has predominantly a drought prone area of South Maharashtra.

Objectives

In the present study an attempt has been made to examine the spatial pattern of Fertilizer Consumption on Agriculture and to identify the Irrigation impact regional variations to the Fertilizer Consumption on Agriculture of the region.

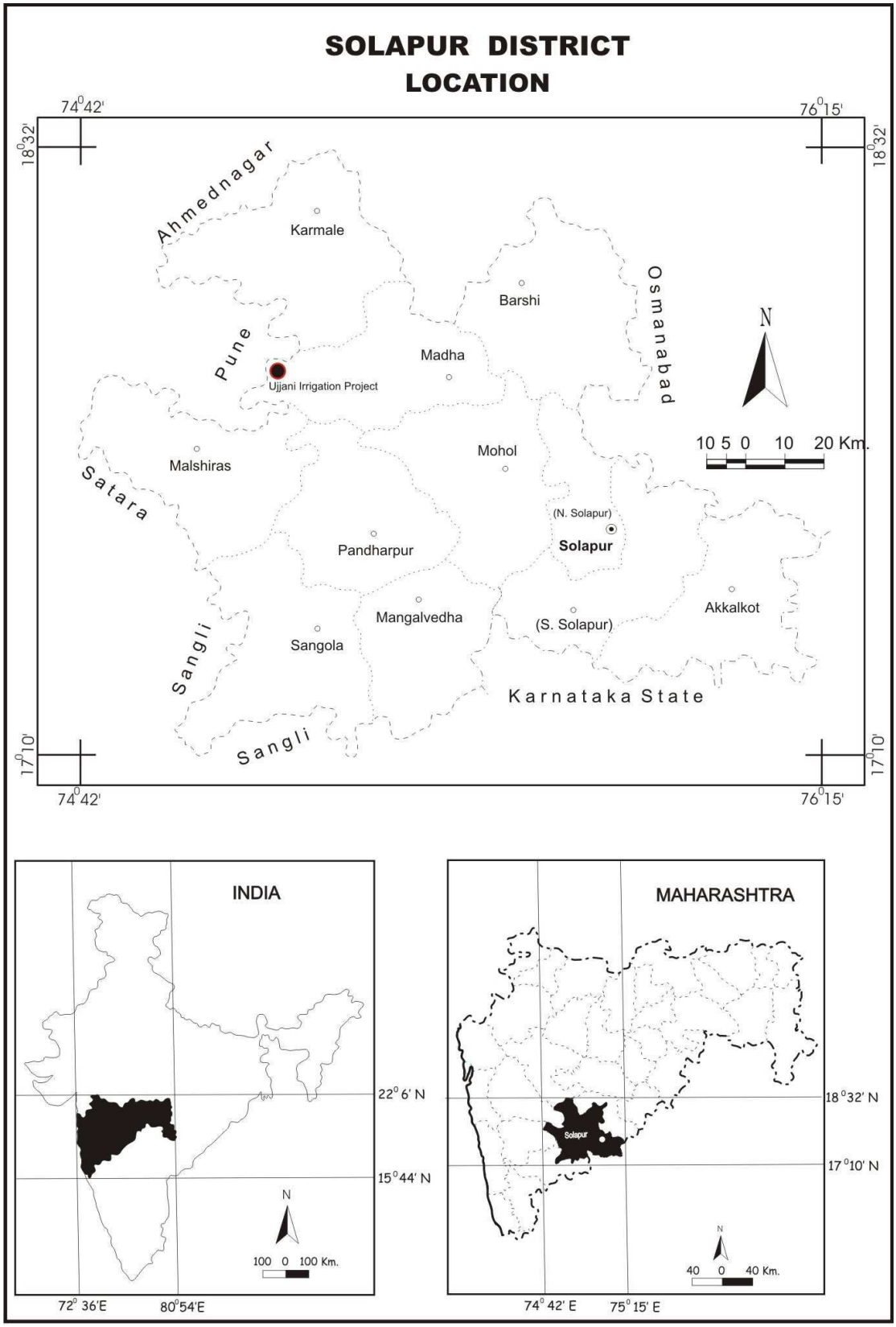
SOLAPUR DISTRICT
LOCATION
74°42'
76°15'
18°32'
17°10'
Ahmednagar
Karmale
Barshi
Osmanabad
Pune
Madha
Ujjani Irrigation Project
N
10 5 0 10 20 Km.
Mohol
Malshiras
Satara
(N. Solapur)
Solapur
Pandharpur
Akkalkot
Mangalvedha
(S. Solapur)
Sangola
Sangli
Karnataka State
Sangli
INDIA
22° 6' N
15°44' N
72° 36'E
80°54'E
100 0 100 Km.
MAHARASHTRA
18°32' N
17°10' N
Solapur
74° 42' E
75° 15' E
40 0 40 Km.

Fig. 1.1

Database and Methodology

The study also intends to examine the relationship between irrigation and fertilizer use crop yields. Primary as well as secondary data has been used. The primary data have been generated from sample village and farm level data have been collected from field survey through schedule method .The secondary data obtained from the records maintained by zilla Parishad and Agricultural development office of Solapur district.The spatial analysis therefore has been attempted here at tehsil level for the year 2007. The data were abstracted for the present analysis, from the published records of zilla Parishad of Solapur District. The data thus obtained were analyzed with the help of formula which was employed by M.G. Jadhav and S.D. Shinde (1979) to calculate concentration index values of fertilizer consumption per unit area the formula has been slightly modified here as –

$$Ife = \frac{Tf}{Df} \times 100$$

Where.

Ife = Index of fertilizer consumption

Tf =for hect./ kg fertilizer consumption in the tehsil

Df – per hect/kg fertilizer consumption in the region (district)

Regional Pattern of Fertilizer Consumption

Spatial pattern of fertilizer consumption in Solapur district. The tehsils can be grouped under three zones based on fertilizer consumption but they have been grouped under three broad categories.

Region of High Consumption – (above 100 kg/hect.)

It includes 2 tehsils located along the Bhima river viz Pandhrpur, Malshiras tehsils (Fig.No 2). The highest fertilizer consumption has been recorded in Pandharpur tehsils which is 241 kg/hect. This zone has been characterized by perennial water for irrigation tehsils fertile alluvial soils dominance of sugarcane cultivation location of sugar factories and close network of village level co-operative societies. Besides these the farmers of irrigated tract are socially and economically capable to adopt new technology. As a result of these this zone possesses high and very high level of fertilizer consumption.

Region of Moderate Consumption – (Between 50 to 100 kg/hect)

The tehsils namely Madha, North Solapur, South Solapur and Mohol represent moderate level of consumption. The index values of these tehsils are 84, 85, 83 and 100 respectively. These tehsils are endowed with the relative developments in irrigation, mainly the range of 500 mm and 600 mm annually. The inadequate conditions of soil moisture of this zone have restricted the use of fertilizers. Besides in this part of co-operative sector has been playing vital role for promoting fertilizers. So the farmers are well aware about the use of fertilizers leading to moderate level of consumption. Fig.No 2.

Regions	Index Value(kg/hect)	Tehsil
Region of High Fertilizer consumption	Above 100	Pandharpur, Malshiras
Region of Moderate Fertilizer consumption	50-100	Madha, Mohol, South Solapur, North Solapur
Region of low Fertilizer consumption	Below 50	Karmala Akkalkot Mangalwedha

Table.No.1 Regional Pattern of Fertilizer Consumption on Agriculture in Solapur District –

Source – Compiled by the Researcher 2009.

Region of Low Consumption - (below 50kg/hect)

It includes 3 tehsils of Northern Eastern and extreme western parts of the districts covering the parts of Karmala, Mangalwedha, and Akkalkot tehsil. The lowest consumption of fertilizers with 26 kg/hec, of cultivated area is confined to Akkalkot tehsil. The lack of irrigation facilities and the poor financial conditions of subsistence

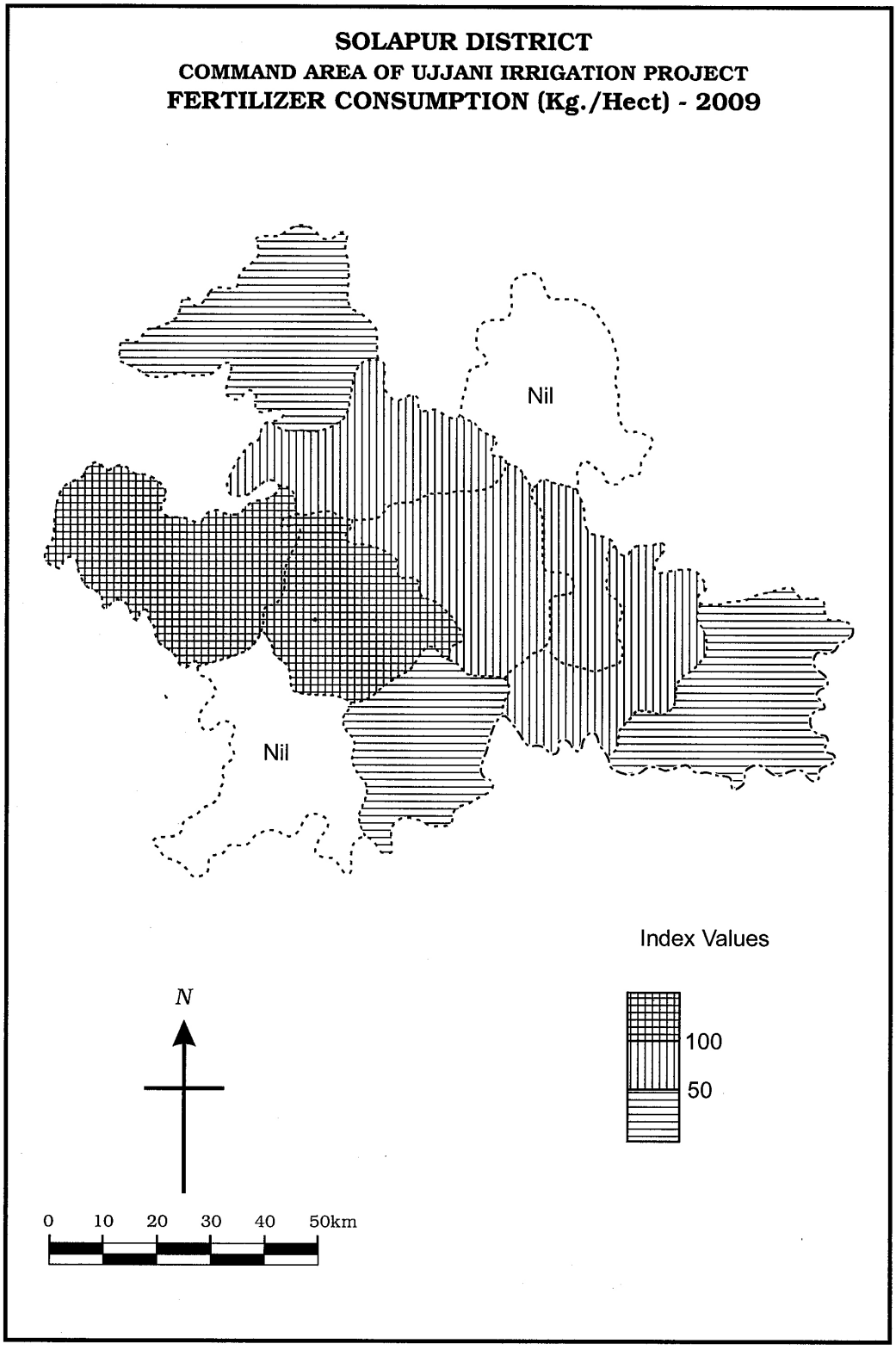
SOLAPUR DISTRICT
COMMAND AREA OF UJJANI IRRIGATION PROJECT
FERTILIZER CONSUMPTION (Kg./Hect) - 2009
Nil
Nil
Index Values
100
50
N
0 10 20 30 40 50km

Fig. 2

Farmer's low purchasing power of farmers and too much dependence of agriculture on uncertain rainfall have all discouraged large scale application of fertilizers in this zone.

Concluding Remarks

Fertilizer is one of the important inputs for archiving the productivity. The Region has witnessed an increasing trend in consumption. Level of different types of fertilizers during the last 28 years ie, from 3.13 kg/hect to 19.43kg/hect as the region has attained substantial development in the irrigation mainly from lifts, wells, tube wells and canal it is observed that there are regional variations in the consumption of fertilizer. The tehsils located along the Bhima river viz Pandharpur, and Malshiras tehsils have recorded high fertilizer consumption i.e. over 100 kg/hect. Their zone has been characterized by perennial irrigation black fertile alluvial soils and dominance of sugarcane cultivation. As a result this zone possess as high level of fertilizer consumption. The low level of fertilizer consumption (below 50 kg/hect.) is observed in northern and eastern parts of the district covering parts of Karmala, Mangalwedha and Akkalkot tehsils. The lack of irrigation facilities and too much dependence of agriculture on monsoon rainfall have restricted large scale application of fertilizer.

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