



Geographical Study of Fertilizer Consumption in Solapur District of Maharashtra

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Abstract :

Fertilizer is the important inputs for achieving high productivity India's impressive growth in food production has been principally due to widespread use of HYV seeds-fertilizer-water technology. Fertilizer is associated with an assured water supply either through rain or irrigation, plant-nutrients, consisting of major secondary and micro-elements have certain specific functions to perform in the plant and should be available in a balanced manner otherwise the full benefits of each or all of them . 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 fertilizers containing them. The fertilizer doses are based on field experiments and depend on crop variety, water availability and soil characteristics. In addition, organic manures and compost derived from plant residues and agricultural wastes and by products may provide plant nutrients. 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 is land saving as well as labor saving input .The period during the last 20 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.North Solapur, Barshi and Akkalkot have lowest consumption of fertilizer.Pandharpur and Malshiras 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 HYV seeds-fertilizer-water technology. Fertilizer is the important inputs for achieving high productivity, which is associated with an assured water supply either through rain or irrigation, plant-nutrients, consisting of major secondary and micro-elements have certain specific functions to perform in the plant and should be available in a balanced manner. The fertilizer doses are based on field experiments and depend on crop variety, water availability and soil characteristics. The fertilizer doses are based on field

experiments and depend on crop variety, water availability and soil characteristics. In addition, organic manures and compost derived from plant residues and agricultural wastes and by products may provide plant nutrients. . Fertilizer is land saving as well as labor saving input and its land quality argumenting character has attracted much attention. The research paper is based on Secondary sources of data collected. Research paper is examined the spatial pattern of Fertilizer Consumption on Agriculture in Solapur district

Study Area: -

Solapur district area under present investigation lies entirely in the Bhima Sina-Man river basins of Krishna river system of South Maharashtra. The district is bounded

by 17° 10' North and 18° 32' North latitudes and 74° 42' East and 76° 15' East longitudes. The district is fairly well defined to its west as well as its east by the inward looking scarps of Phaltan range and Osmanabad plateau respectively. The adjoining districts are Sangli to its south west, Satara to its west, Pune to its north-west, Ahmadnagar to its north, Bhir and Osmanabad to its east and Bijpur district of Karnataka state to its south. Broadly the Physiography of the district may be grouped into three parts i.e. I) 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, Bhogavati etc. The Bhima River on Ujjani irrigation project is a major irrigation project in solapur district. The district has a total area of 14886 Kms² and population of **4317756** persons as per 2011 census which constitute purposes; the district is divided into eleven tehsils (Fig.No.1) e.g. North Solapur, Barshi Akkalkot, South Solapur, Mohol Managalwedha, Pandharpur, Sangola, Malshiras, Karmala and Madna. The Solapur district is located in Southern Maharashtra. Its latitudinal

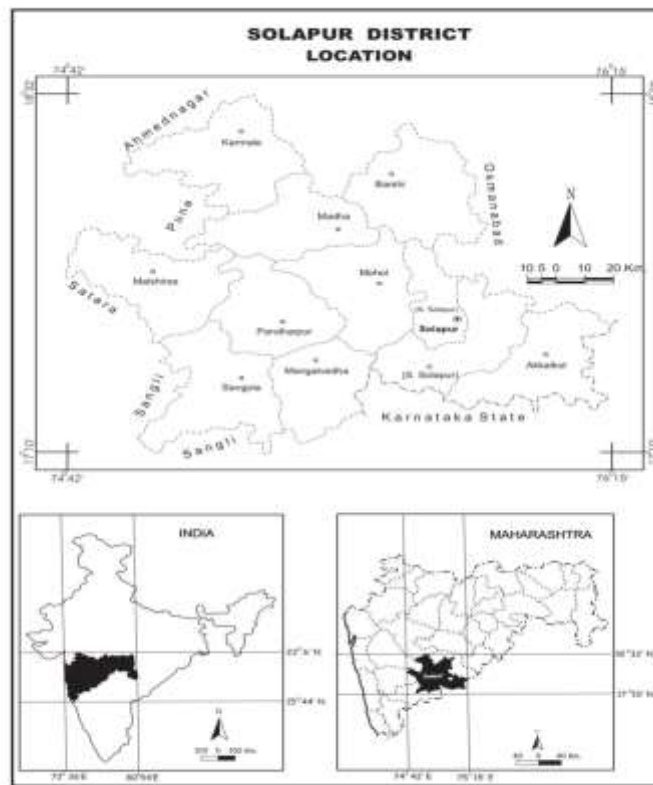


Fig. 1.1

extent is from 17° 10' north to 18° 32' North and longitudinal is 74° 42' east to 76° 15' east. The average annual rainfall in the 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 regional variations to the Fertilizer Consumption on Agriculture of the region.

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 2020. 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 –

$$I_{fe} = \frac{T_f}{D_f} \times 100$$

Where.

I_{fe} = Index of fertilizer consumption

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

D_f – 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

A) Region of Low Consumption - (below 75 kg/hectare)

It includes 3 tehsils of Northern Eastern and extreme western parts of the districts covering the parts of North Solapur, Barshi

and Akkalkot tehsils. The lowest consumption of A fertilizer with 65.4 kg/hect, of cultivated area is confined to Akkalkot, Barshi 69.2 kg/hect and Akkalkot 73.0 kg/hect tehsils. The lack of irrigation facilities and the poor financial conditions of subsistence farmer's low purchasing power of farmers and too much dependence of. Agriculture on uncertain rainfall has all discouraged large scale application of fertilizers in this zone

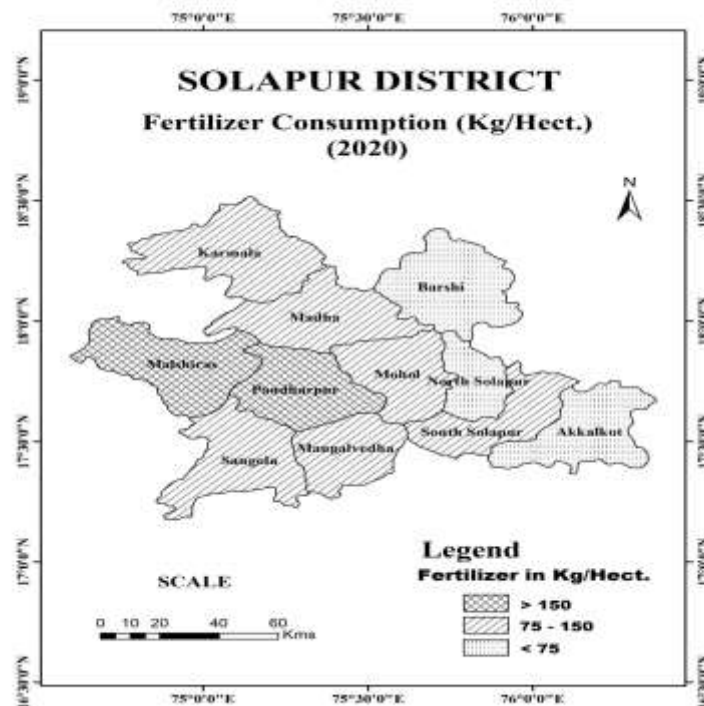


Fig. No. 1.2

B) Region of Moderate Consumption - (Between 75 to 150 kg/hectare)

The tehsils namely South Solapur, Karmala, Madha, Sangola and Mohol represent moderate level of consumption. The index values of these tehsils are South Solapur (77.6), Karmala (86.9), Madha (87.2), Sangola (103) and Mohol (104) respectively. These tehsils are endowed with the relative developments in irrigation, mainly the range

of 500 mm and 600 mm annually rainfall. The inadequate conditions of soil moisture of this zone have restricted the use of fertilizers. Besides in this part of cooperative 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.

C) Region of High Consumption. (Above 150 kg/hect)

It includes 2 tehsils located along the Bhima River viz Pandhrpur, Malshiras tehsils (Fig.1.2). The highest fertilizer consumption has been recorded in Malshiras tehsils which is 308 kg/hect and Pandharpur (151.5) 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.

Conclusion: - Addition of plant nutrients in the form of fertilizer constitutes an essential step in agricultural production. Because of the narrow land man ratio, the only hopeful means supplying needs of agricultural produce would be by raising productivity level. One of the important inputs for achieving this objective is the fertilizer. The region has witnessed an increasing trend in consumption level of different types of fertilizers during the last 20 years i.e. from 3.13 kg/hect. To 19.43 kg/hect. (488.49 per cent) 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. above 150 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 75 kg/hect.) is observed in northern and eastern parts of the district covering parts of North Solapur, Barshi 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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