



NPK Fertilizers Consumption in Kolhapur District

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Abstract:

Agriculture, with its allied sectors, is unquestionably the biggest livelihood provider in India, more so in the vast or widely rural areas. Some soils are weakly drained because of the land position, soil texture, and the elevation of the water table. So fertilizers roles are significant for supplied organic matters. Soil organic matter is promoted by crop residue, conservation tillage and diverse rotations. Organic matter is helpful to agricultural soils because it enhances water infiltration, soil water holding capacity, microbial activity and fertility. This paper an attempt is made to analysis the utilization of fertilizes in Kolhapur district.

Introduction-

Soil organic matter is a source of both macronutrients like nitrogen and phosphorus and potassium, as well as micronutrients. Macronutrients and micronutrients both are main organic matter for growth and development of plant.

Objective-

The objective of this study is as given below:

- i) To consumption of NPK fertilizers in Kolhapur district.

The Region-

The Kolhapur district is one of the southernmost districts of Maharashtra state. The district's courtiers a total area of 7,685 sq. kms. It lies between 16° 0' 0"N to 17° 0' 0" North latitude and 74° 0' 0" to 75° 0' 0" East longitude. The length of the district south to north is 160 Kms. and east to west is 60 Kms. The Sahyadri ranges to the west and Warna river to the north, the river Krishna and Belgaum district to the south and east, forms the natural boundaries of the district. The region receives average rainfall 1900 mm. Total population in Kolhapur district is 3876001. Out of the total Kolhapur population for 2011, 31.73% lives in urban regions of district. In total 1230009 people lives in urban area of which males are 631843 & females are 598166. The district is consisting of 12 revenue tehsil's namely Shahuwadi, Panhala, Hatkanangale, Shirol, Karvir, Gaganbavada, Radhanagri, Chandgad, Ajra, Gadhinglaj, Kagal, and Bhudhargad.

Methodology:

In this paper the consumption of NPK fertilizer is determined using the methodology used by percentage. The data thus obtained were analyzed with the help of formula, which was derived by Jadhav, M.G. and Shinde, S.D. in (1979), to calculate index value of fertilizer consumption per unit area at tahsil-wise level.

The formula has been slightly modified here:

$$I_{fe} = [RP/DP]] * 100$$

Where,

I_{fe} - Index of fertilizer consumption.

RP - fertilizer consumption in the tehsil.

DP - fertilizer consumption in the district.

1.1) Nitrogen (N):

Environmental factors affecting nitrogen production and utilization include soil moisture and soil temperature. Nitrogen affects a plant's leaf progress. Yellow or pale green leaves indicate a nitrogen deficiency.

Table.1.1

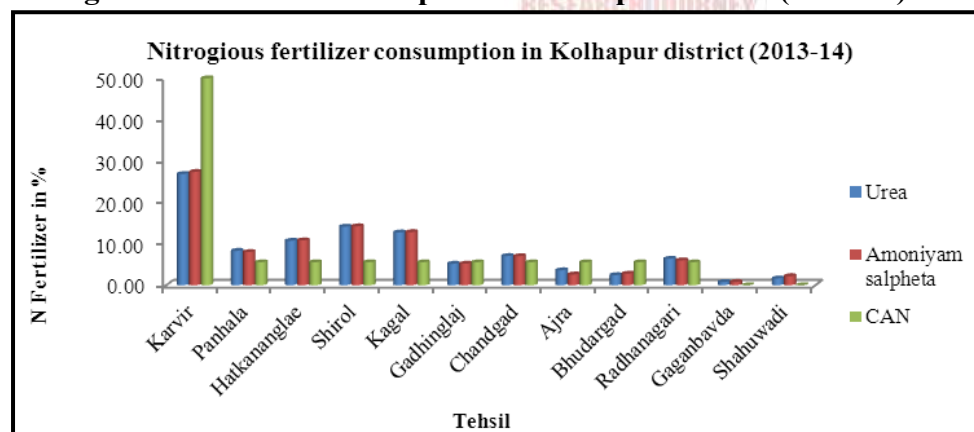
Nitrogenous fertilizer consumption (2013-2014)

Nitrogenous						
District	Urea	%	Amoniyam Sulphate	%	CAN	%
Karvir	16480	26.88	1365	27.38	90	50
Panhala	5100	8.32	400	8.02	10	5.56
Hatkanangale	6590	10.75	540	10.83	10	5.56
Shirol	8673	14.15	710	14.24	10	5.56
Kagal	7820	12.75	640	12.84	10	5.56
Gadhinglaj	3190	5.20	260	5.22	10	5.56
Chandgad	4320	7.05	350	7.02	10	5.56
Ajra	2220	3.62	130	2.61	10	5.56
Bhudargad	1500	2.45	140	2.81	10	5.56
Radhanagari	3930	6.41	300	6.02	10	5.56
Gaganbavda	480	0.78	40	0.80	0	0.00
Shahuwadi	1009	1.65	110	2.21	0	0.00
District total	61312	100.00	4985	100.00	180	100

Source: Zilla Parishad, Kolhapur (2013-14)

Fig.1.1

Nitrogenous fertilizer consumption in Kolhapur district (2013-14)



Source-Compiled by the researcher

Excessive growth and extremely dark-green leaves indicate an excess of nitrogen. Natural nitrogen supplements include composting, farm yard manure in study region. Ammonium sulphate, Calcium Ammonium Nitrate, Ammonium Sulphate Nitrate and Urea are supplements by nitrogen. Fig 1.1 shows that Urea and Ammonium sulphate high fertilizer consumption in Karvir, Shirol and Kagal because sugarcane and vegetables are dominant crop in these area and low fertilizer consumption in Gadhinglaj, Ajra, Bhudargad, Gaganbavada and Shahuwadi. Calcium Ammonium Nitrate is highly concentrated in Karvir.

1.2) Phosphorus (P):

Phosphorous has a lot of roles in crop plant growth and development. Symptoms of phosphorus deficiency include stunted or little growth and purplish plants.

Table 1.2

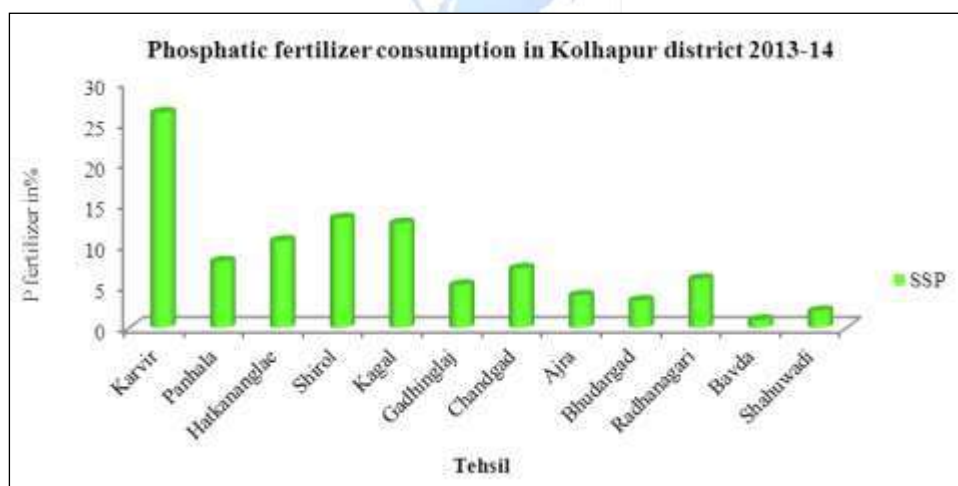
Phosphatic fertilizer consumption (2013-2014)

District	Phosphatic			
	SSP	%	TSP	%
Karvir	2476	26.38	0	0
Panhala	760	8.10	0	0
Hatkanangale	1000	10.66	0	0
Shirol	1259	13.42	0	0
Kagal	1200	12.79	0	0
Gadhinglaj	490	5.22	0	0
Chandgad	680	7.25	0	0
Ajra	370	3.94	0	0
Bhudargad	310	3.30	0	0
Radhanagari	560	5.97	0	0
Bavda	90	0.96	0	0
Shahuwadi	190	2.02	0	0
District total	9385	100.00	0	0

Source: Zilla Parishad, Kolhapur (2013-14)

Fig.1.2

Phosphatic fertilizer consumption in Kolhapur district (2013-14)



Source-Compiled by the researcher

In plants phosphorus is poor soil may have a purple shed to their leaves and will show slow growth and poor production of blossoms and fruit. (www.fertilizerplants.in).Natural phosphorus sources include rock phosphate and bone meal. Single Super Phosphate, Triple Super Phosphate, and Dia Calcium Phosphate are included in phosphorus chemical fertilizers.

Fig.1.2 shows that SSP high fertilizer consumption in Karvir, Shirol Hatkanangale and Kagal because sugarcane and vegetables are dominant crop in these area and low fertilizer consumption in Ajra, Bhudargad, Gaganbavada and Shahuwadi.

1.3) Potassium (K):

Potassium is especially important for crops with wide root systems (e.g. tomatoes, potatoes). It is needed for photosynthesis, winter hardiness, fruit formation, disease resistance, stalk strength, legume competitiveness, and increased microbial activity including nitrogen fixation. Symptoms of potassium deficiency in grasses include yellowing of leaf margins.(John Lamb, Craig Sheaffer, Kristine Moncada 2000).

Muriate of potash, sulphate of Potash, Nitro phosphate, Mono Ammonium Phosphate, and Diammonium phosphate are included in potassium.

Table-1.3

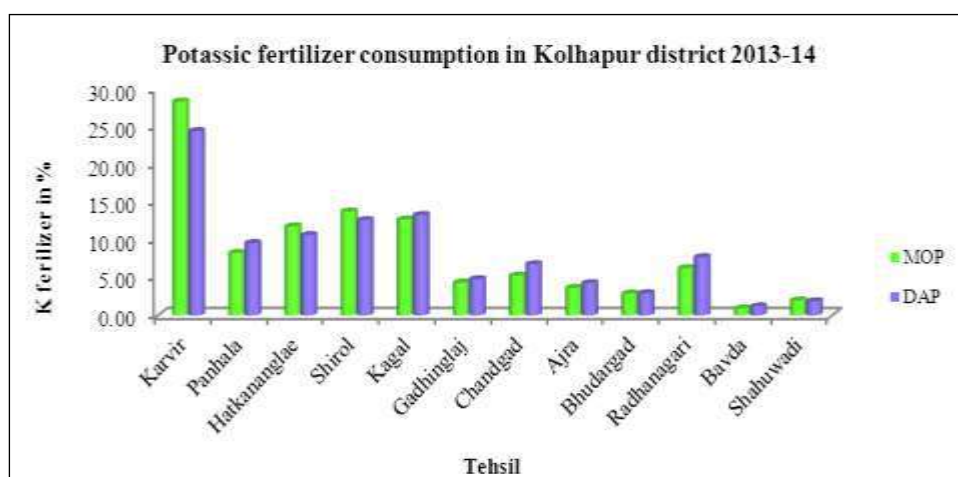
Potassic fertilizer consumption(2013-2014)

Potassic				
District	MOP	%	DAP	%
Karvir	4038	28.30	1836	24.40
Panhala	1180	8.27	720	9.57
Hatkanangale	1680	11.77	800	10.63
Shirol	1962	13.75	950	12.62
Kagal	1810	12.68	1000	13.29
Gadhinglaj	620	4.34	360	4.78
Chandgad	750	5.26	510	6.78
Ajra	520	3.64	320	4.25
Bhudargad	410	2.87	220	2.92
Radhanagari	890	6.24	580	7.71
Bavda	130	0.91	90	1.20
Shahuwadi	280	1.96	140	1.86
District total	14270	100.00	7526	100.00

Source: Zilla Parishad, Kolhapur (2013-14)

Fig. 1.3

Potassic fertilizer consumption in Kolhapur district (2013-14)



1.3 shows that MOP and DAP high fertilizer consumption in Karvir, Shirol Hatkanangale and Kagal and low fertilizer consumption in Ajra, Bhudargad, Gaganbavada and Gadhinglaj,Shahuwadi,because farmer economic status is low and not availability of fertilizer.

1.4) Mixed fertilizer and soluble fertilizers:

18;10;10,10;26;26,20;10;10,20;20;00,19;19;19,20;10;10,10;36;10,12;61,00 and 13;00;45



are included in mixed and soluble fertilizers.

Table 1.4

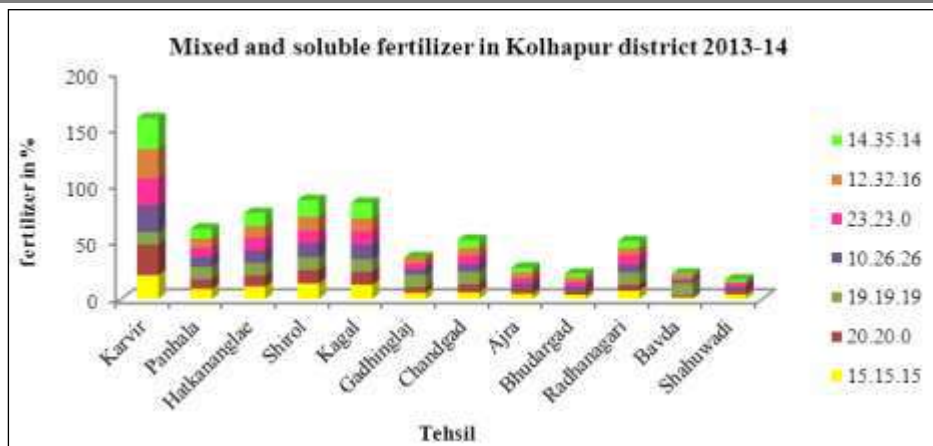
Mixed and soluble fertilizer consumption in Kolhapur district (2013-14)

Tehsil	Mixed Fertilizer and Soluble Fertilizers													
	15.15.15		20.20.0		19.19.19		10.26.26		23.23.0		12.32.16		14.35.14	
Karvir	1393	21.11	865	27.00	10	11.11	1025	23.87	476	23.67	455	25.63	312	27.37
Panhala	580	8.79	270	8.43	10	11.11	380	8.85	160	7.96	150	8.45	96	8.42
Hatkanangale	730	11.06	310	9.68	10	11.11	470	10.95	230	11.44	180	10.14	132	11.58
Shirol	909	13.77	379	11.83	10	11.11	549	12.79	215	10.69	220	12.39	168	14.74
Kagal	830	12.58	370	11.55	10	11.11	550	12.81	240	11.93	200	11.27	156	13.68
Gadhinglaj	360	5.45	160	4.99	10	11.11	210	4.89	100	4.97	100	5.63	0	0.00
Chandgad	390	5.91	230	7.18	10	11.11	280	6.52	150	7.46	120	6.76	84	7.37
Ajra	310	4.70	160	4.99	0	0.00	180	4.19	90	4.48	90	5.07	48	4.21
Bhudargad	250	3.79	120	3.75	0	0.00	160	3.73	80	3.98	70	3.94	36	3.16
Radhanagari	480	7.27	170	5.31	10	11.11	280	6.52	170	8.45	110	6.20	72	6.32
Bavda	90	1.36	50	1.56	10	11.11	80	1.86	40	1.99	60	3.38	12	1.05
Shahuwadi	278	4.21	120	3.75	0	0.00	130	3.03	60	2.98	20	1.13	24	2.11
Total	6600	100.00	3204	100.00	90	100.00	4294	100.00	2011	100.00	1775	100.00	1140	100.00

Source: Zilla Parishad, Kolhapur (2013-14)

Fig. 1.4

Mixed and soluble fertilizer consumption in Kolhapur district (2013-14)



Source-Compiled by the researcher

In general, the deficiency of at least nutrients (N, P, K, S and Zn) has become fairly widespread. There is a need to utilize of types of fertilizers required to correct the deficiency or scarcity of all these nutrients. To improve the naturally less organic matter content of the land, the application of sufficient quantities of mixed and soluble fertilizers are essential in study region.(Table 1.4)

Conclusion

With the results of growth in agricultural inputs, like irrigation, HYV seeds and consumption of chemical fertilizer, it leads to conclusion that, there is no even growth in use of agricultural inputs in Kolhapur. Fertilizers do not only help in increasing yields and promoting healthy and strong growth of plants but also in their development. Supply to the demand efficiency (total NPK and mixed fertilizer) in kharip season of total fertilizers in Kolhapur district is approximately about 55.94 % and 63.18 %. It varies from tehsil to tehsil. Urea and Ammonium sulphate high fertilizer consumption in Karvir, Shirol and Kagal because sugarcane and vegetables are dominant crop in these area. MOP and DAP high fertilizer consumption in Karvir, Shirol and Hatkanangale.

References:

- John Lamb, Sheaffer Craig, Kristine Moncada (2007): Risk Management Guide for Organic Producer, pp 22,26 and 30

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