Soil Nutrient and Fertility Status of Muktainagar Tehsil, Jalgaon District, Maharashtra, India

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Abstract

The response of every crop or a cropping system to added nutrients is depend upon the inherent capacity of soil to supply that nutrient as per the requirement of the crop. Chemical test have long been used to estimate the nutrient availability in soil to predict the probability of obtaining profitable response to applied nutrients on the basis of soil testing. Soils can be rated low, medium and high in nutrient status and suitable fertilizer amount can be recommended. So, one hundred and twenty surface geo-referenced soil samples (0-20 cm) were collected from Dui Village, Muktainagar Tehsil, Jalgaon district, Maharashtra, during the year 2019-20 to assess the fertility status of an area and analyzed for pH, electrical conductivity, organic carbon, available nitrogen, phosphorus and potassium, available sulphur and available micronutrients (Zn, Mn, Fe Cu & Bo) using standard analytical methods. Soil testing plays an important role in the use of fertilizers and other agricultural inputs. Soil test summaries and soil fertility maps are of vital necessity as reference materials for the scientific management of soil. This information could aid in decision making for the application of plant nutrients for higher monetary returns to the farmers.

Keywords: Macronutrients; Soil fertility status; Balance nutrients; Soil health; Soil Testing; Balance Fertilizers

Introduction

Soil is a medium for plant growth and development that leads to crop productivity. Crop productivity depends on many factors and fertility is major amongst all. Soil fertility has direct relation with crop yields, provided other factors are in optimum level. Soil fertility must be periodically estimated as there is continuous removal of macro and micronutrients by crop intensively grown in every crop season.

Cultivating high yield varieties of crops for more production of agricultural yield to fullfil the increasing population demands of food grains there is a over exploitation of productive lands, creating a serious problems in such productive lands and due to that fertility status of soil is getting lowering down, hence most of lands are becoming less fertile and infertile too. It is found that, the deficiency of nutrients directly affects the growth of crops and crop response becomes poor [1]. The fertility problem cannot be solved merely by supply of plant food elements but their deficiency management has done through fertilizer addition, as fertilizer being one of costliest input required, hence balanced scheduling for optimizing dose is necessary to get maximum returns. The future planning for an intensive farming will be based on the nutrient status of soil as assessed by soil testing. So

that the problems related to residual effect of fertilizers, compatibility of fertilizers, appropriate method and time of their application, suitability of fertilizers for various crops, soil types and fertilizer pesticide – herbicide interaction may be taken care.

Hence, for the sustainability of the present agricultural system and management of our soil resources, a database regarding the fertility status of soils is required. Application of fertilizers by the farmers in fields without prior knowledge of soil fertility status might result in adverse effects on soils as well as crops both in terms of macronutrient and micronutrient deficiency and toxicity either by inadequate or overuse of fertilizers. With the invention of modern technologies of remote sensing, GIS and GPS, it is now possible to monitor soil fertility and crop health through systematic surveys. This will be helpful to monitor the changes in fertility status of the studied area site-specific nutrient requirement of the crop. It is anticipated that with higher yields and more intensive agriculture the secondary and micronutrient deficiency will increase both in amount and extent [2].

Imbalanced and inadequate use of fertilizers coupled with low use efficiency of other inputs leads to a decline in the response efficiency of chemical fertilizer nutrients under intensive agriculture in recent years. Micronutrients are important for maintaining soil health and increasing fertilizer use efficiency of major nutrients and ultimately the crop productivity. The deficiency of micronutrients has become a major constraint in the sustainable crop productivity of soils and hence there is a need to know the status of nutrients of the soil [3,4]. Keeping this in view, the present study was undertaken in Dui Village Muktainagar Tehsil, Jalgaon district Maharashtra to study the macro and micro nutrient status of the soils.

Materials and Methods

Selection of Farmers

Some farmers are not analyzing the soil; those one hundred and Twenty farmers were selected from the Village Dui, Muktainagar, Jalgaon District.

Sampling method

For assess the different chemical properties of soil, surface geo-referenced soil samples (0-20 cm) were collected from from the farmer's field, Dui Village.

Preparation of Soil Sample

The collected samples were air dried gently grinded, sieved through 2 mm sieve and stored in properly labelled bags for chemical analysis.

Analytical Methods

The analytical methods commonly adopted in most of the laboratories for research investigations were followed.

a) Soil Reaction (pH)
The soil pH was determined by digital pH meter using glass electrodes soil: water suspensions (1:2.5 w/v) as described by Jackson (1973).

b) Electrical Conductivity (EC)
It was determined with conductivity meter using soil: water suspensions (1:2.5 w/v) as described by Jackson (1973).

c) Organic Carbon
It was determined by Wet oxidation method described by Walkley and Black [5,6].

d) Available Nitrogen
It was determined by Alkaline Permanganate method [7].

e) Available Phosphorus
The soil was extracted with Olsen's reagent 0.5 m $NaHCO_3$ of pH 8.5 and from the extract available P was estimated calorimetrically as per Jackson [8]. Determine by Olsen's method.

f) Available Potassium
K (exchangeable and water soluble forms) was estimated by extracting the soil with 1 N NH_4OAc (pH 7.0) and concentration of K in extract was measured using flame photometer. Available K was determining by using flame photometer (Ammonium Acetate extraction method).

g) Available S
It was estimated by the turbidimetric method [9].

h) Available Micronutrients (Avl. Zn, Fe, Cu and Mn)
These were determining by Soil samples were extracted with 0.005 M diethylene triamine penta acetic acid (DTPA) using Atomic Absorption Spectrophotometer [10].

i) Available boron
It was determined by 0.01 M $CaCl_2$ to extract with the Azo-methine method [11,12].

Sr.No.	Parameters	Low	Medium	High
1	pH (1:2.5)	<6.5 (Acidic)	6.5-7.5 (Neutral)	>7.5 (Alkaline)
2	EC (dS m^{-1})	<1.0	2-Jan	>2.0
3	O.C. (%)	< 0.50 %	0.50 – 0.75%	> 0.75%
4	N (kg ha^{-1})	<280	280-450	Above 450
5	P (kg ha^{-1})	< 11.0 Kg/ha	11 – 22 Kg/ha	> 22 Kg/ha
6	K (kg ha^{-1})	< 110Kg/ha	110-280Kg/ha	> 280Kg/ha
7	S (mg kg^{-1})	<10.0	20-Oct	>20.0
8	Zn (mg kg^{-1})	<0.60	0.6-1.80	>1.80
9	Fe (mg kg^{-1})	<4.50	4.50-18.0	>18.0
10	Cu (mg kg^{-1})	<0.20	0.20-0.80	>0.80
11	Mn (mg kg^{-1})	<2.0	2.0-8.0	>8.0
12	B (mg kg^{-1})	<0.50	0.50-1.0	>1.0

Table 1: Categorization of soil parameters and nutrients.

Sr. No	Name of the farmer	pH	EC (dSm^{-1})	OC (%)	N	P	K		Zn	Cu	Fe	Mn	Bo
					Kg ha^{-1}				mg kg^{-1}(ppm)				
1	Girdhar Kautik Jawale	7.7	0.76	0.29	238.34	11.64	260	11.52	0.62	0.36	2.53	1.62	1.11
2	Latbai Vasant Varade	7.6	0.69	0.3	87.61	23.29	213	14.04	0.46	0.49	3.24	1.74	1.85
3	Vaman Yashavant Jawale	7.6	0.68	0.2	190.35	8.73	202	17.28	0.52	0.5	1.26	1.18	2.68
4	Samadhan Santosh Patil	7.6	0.69	0.33	175.62	14.58	370	13.32	0.74	0.36	3.74	1.64	2.78
5	Dnyaneshwar R. Patil	7.7	0.7	0.23	213.25	11.64	291	14.04	0.74	0.58	3.97	1.62	1.3
6	Indubai Shalik Patil	7.6	0.67	0.79	225.79	23.29	336	14.76	0.62	0.5	2.5	1.56	1.2
7	Vikram Chimaji Jagtap	7.7	0.83	0.33	137.98	11.64	280	11.52	0.43	0.6	2.53	1.44	1.57
8	Kamlabai Narayan Kadam	7.4	0.69	0.32	75.26	20.38	314	11.88	0.44	1.01	2.42	1.62	1.76
9	Kadu Sitaram Patil	7.2	0.64	0.29	67.81	26.2	358	12.6	0.44	0.64	3.05	1.56	1.67
10	Latabai Chimaji Jagtap	7.6	0.65	0.18	137.98	23.29	370	17.28	0.54	0.38	1.74	1.48	2.04
11	Manohar M.Avsarmal	7.4	0.67	0.32	100.35	8.73	381	19.08	0.56	0.6	3.3	1.18	2.68
12	Mohan S.Deshmukh	7.6	0.59	0.33	150.53	14.56	336	14.04	0.58	0.46	2.53	1.66	2.31
13	Rajendra Janakiram Patil	7.6	0.67	0.36	100.35	11.64	279	14.76	0.62	0.66	3.27	1.42	1.54
14	Vijay Namdev Talele	7.5	0.67	0.35	137.98	26.2	280	11.52	0.57	0.42	2.38	1.94	3.42
15	Vimalbai Santosh Ingale	7.6	0.7	0.29	175.62	14.56	358	13.68	0.74	0.49	3.25	1.5	2.31
16	Kasturabai Ukha Bhil	7.1	0.68	0.38	200.7	8.73	224	9	0.43	0.36	3.09	1.62	1.85
17	Rama Supadu Nikam	7.7	0.7	0.23	212.25	23.29	314	12.6	0.47	0.47	3.48	1.94	2.04
18	Sulabai Kadu Patil	7.6	0.66	0.3	100.35	20.38	426	10.08	0.44	0.58	1.27	1.74	1.94
19	Kesharbai Nathu Patil	7.2	0.64	0.35	137.98	14.56	347	13.68	0.54	0.5	1.29	1.44	2.22
20	Ram Babu Gawande	7.4	0.67	0.32	150.53	23.29	325	15.12	0.45	0.66	2.53	1.62	2.5
21	Madhukar D.Lokhande	7.3	0.7	0.3	200.7	14.56	336	10.8	0.42	0.42	3.96	1.24	2.59
22	Shivdas Ramchandra Bhil	7.2	0.75	0.29	188.16	11.64	314	12.07	0.56	0.6	3.24	1.58	1.67
23	Bebabai Ukha Bhil	7.8	0.64	0.32	100.35	20.38	325	11.52	0.67	0.36	2.53	1.34	1.67
24	Ganpat Tenaji Bhil	7.3	0.64	0.35	112.9	14.56	426	17.28	0.42	0.42	2.53	1.18	1.39

25	Pundabai Motiram Bhil	7.3	0.7	0.29	100.35	11.64	358	13.32	0.47	0.83	2.04	1.5	1.11
26	Subhash Shravan Jaykaar	7.4	0.82	0.32	175.62	8.73	426	11.52	0.62	0.69	3.26	1.58	1.3
27	Ramesh Ashok Jaykar	7.6	0.66	0.26	200.7	14.56	280	13.32	0.57	0.42	2.5	1.44	1.48
28	Dhiraj Pradip Sapkale	7.8	0.66	0.35	100.35	11.64	246	10.88	0.42	0.62	1.74	1.74	1.2
29	Mahendra M. Sonawane	7.9	0.87	0.3	112.9	20.38	314	17.26	0.62	0.6	3.3	1.18	1.94
30	Dattatraya M. Fegade	7.6	0.68	0.38	125.44	26.32	325	14.04	0.53	0.66	3.48	1.66	2.22
31	Tejas Ravindra Fegade	7.6	0.66	0.38	150.53	23.29	213	9	0.48	0.62	3.09	1.62	2.76
32	Vinod Kadu Patil	7.6	0.65	0.33	137.98	23.29	314	11.16	0.62	0.35	2.51	1.26	1.02
33	Rajendra Kadu Patil	7.7	0.68	0.3	100.35	26.2	336	9	0.45	0.36	3.07	1.64	1.2
34	Vasant Ramu Patil	7.5	0.66	0.3	112.9	14.56	213	16.2	0.7	0.38	1.71	1.36	2.06
35	Vinod Dinkar Gavale	7.4	0.95	0.29	188.16	14.56	314	15.46	0.44	0.42	2.6	1.86	1.85
36	Isha.Sha.Bismilla Sha.	7	0.87	0.33	100.35	8.73	347	8.26	0.56	0.56	3.27	1.62	1.95
37	Bhagawan Gambhir Patil	7.1	0.67	0.23	137.98	20.38	414	10.8	0.58	0.4	3.63	1.26	1.3
38	Sadashiv Gambhir Patil	7.3	0.7	0.29	125.44	26.2	426	16.8	0.48	0.38	3.05	1.88	1.3
39	Zendu Keshav Bhangale	7.3	0.67	0.3	112.9	14.56	280	13.68	0.44	0.62	1.93	1.94	1.57
40	Pralhad Keshav Bhangale	7.7	0.7	0.23	100.35	20.36	426	7.2	0.7	0.56	3.27	1.26	1.65
41	Tejas Ravindr Fegade	7.3	0.69	0.3	113.25	11.64	356	16.2	0.54	0.36	3.96	1.94	2.04
42	Pundalik Baburao Koli	7.6	0.69	0.32	118.16	8.73	325	15.48	0.71	0.62	3.71	1.62	2.78
43	Kanhaiya Gopal Fegade	7.6	0.79	0.33	213.25	23.29	356	11.16	0.62	0.59	3.25	1.66	2.68
44	Ravindra R. Koli	7.6	0.65	0.35	137.98	14.56	414	10.44	0.66	0.31	1.97	1.36	1..67
45	Muralidhar Kisan Fegade	7.4	1.34	0.29	112.9	8.73	336	11.16	0.63	0.36	2.5	1.64	1.76
46	Samadhan Santosh Patil	7.7	0.67	0.35	188.16	26.2	280	11.52	0.54	0.42	3.57	1.36	1.39
47	Mandabai Gopal Patil	7.6	0.68	0.23	213.25	11.64	358	14.76	0.46	0.59	2.5	1.84	1.11
48	Chandabai Santosh Patil	7.6	0.66	0.23	137.98	14.56	336	14.4	0.7	0.8	3.97	1.18	1.02
49	Mandabai Pratap Kochure	7.6	0.66	0.33	100.35	23.29	314	17.64	0.44	0.62	1.71	1.22	1.3
50	Chandrakala J.Patil	7.9	0.67	0.3	125.44	14.56	213	13.68	0.68	0.64	5.3	1.56	1.57
51	Pratap Aniket Kochure	7.9	0.69	0.33	137.98	20.38	347	14.4	0.44	0.36	3.27	1.68	1.85
52	Prakash Jagannath Patil	7.7	0.67	0.32	112.9	8.73	358	9	0.42	0.6	3.53	1.26	2.04
53	Gopal Pandit Patil	7.6	0.65	0.33	213.25	11.64	213	11.16	0.58	0.62	3.57	1.24	1.11
54	Kalabai Devidas Patil	7.8	0.87	0.3	188.16	26.2	280	17.64	0.76	0.6	3.27	1.66	1.3
55	Sanjay Bhagvat Patil	7.6	0.79	0.29	100.35	14.56	246	14.76	0.45	0.59	3.71	1.9	1.39
56	Javatrabai E. Sonavane	7.6	0.69	0.23	112.9	8.73	347	14.4	0.79	0.31	3.25	1.68	1.85
57	Kasthurabai Ukha Phil	7.7	0.66	0.33	100.35	23.29	325	10.44	0.62	0.59	2.64	1.56	1.57
58	Fattu Jjaysingh Bhil	7.7	0.65	0.44	137.98	20.38	381	14.4	0.66	0.62	2.51	1.54	1.39
59	Padmabai Namdev Talele	7.6	0.69	0.38	213.25	14.56	414	11.16	0.63	0.64	3.49	1.22	1.67
60	Ushabai Manohar Talele	7.7	0.67	0.24	100.35	20.38	426	16.2	0.46	0.36	2.5	1.44	1.11
61	Yogesh Kadu Kolte	7.7	0.68	0.29	112.9	8.73	314	11.52	0.42	0.34	3.52	1.22	1.39
62	Sandip Bhagwat Talele	7.7	0.69	0.38	100.35	11.64	347	10.08	0.48	0.37	3.27	1.95	1.02
63	Manjurabai T. Kochure	7.9	0.65	0.41	125.44	20.38	213	9	0.66	0.39	2.73	1.42	1.3
64	Anita Hari Dhangar	7.5	0.69	0.38	137.98	14.56	336	11.16	0.48	0.83	3.48	1.48	1.11
65	Ramlal Ramsing Bhil	7.7	0.63	0.18	225.79	15.52	358	14.04	0.61	0.47	5.26	1.84	1.85

66	Bansi Arjun Bhil	7.8	0.7	0.3	188.16	11.64	213	10.08	0.62	0.84	5.97	1.12	2.04
67	Dharma Zipru Bhil	7.7	0.65	0.38	137.98	14.56	280	17.28	0.58	0.39	5.27	1.24	2.5
68	Sursing Sitaram Bhil	7.7	0.66	0.3	125.44	8.73	426	11.52	0.44	0.44	2.95	1.94	1.94
69	Sopan Namdev Ingale	7.7	0.65	0.39	112.9	11.64	358	14.76	0.66	0.4	3.93	1.24	2.31
70	Chotu Shalik Rane	7.7	0.65	0.38	125.44	20.38	381	11.52	0.61	0.47	2.64	1.48	1.11
71	Bhupendra Shalik Rane	7.6	0.85	0.3	225.79	11.64	437	14.76	0.48	0.35	2.49	1.7	1.57
72	Rajani Rajendra Chaudhari	7.7	0.79	0.39	225.79	20.38	358	14.4	0.42	0.41	3.27	1.26	2.04
73	Kanhaiya Gopal Fegade	7.6	0.65	0.3	112.9	8.73	392	10.08	0.62	0.46	2.43	0.44	2.31
74	Ashok Narayan Talele	7.8	0.67	0.42	188.16	14.56	347	9	0.44	0.43	5.36	1.66	1.76
75	Pandharinath N.Talele	7.8	0.65	0.3	225.79	23.29	314	10.8	0.45	0.34	3.48	1.48	1.2
76	Padmabai Namdev Talele	7.7	0.65	0.32	137.98	20.38	426	11.52	0.68	0.32	2.73	1.94	1.3
77	Dinkar Dhanaji Talele	7.8	0.65	0.33	125.44	11.64	325	12.6	0.61	0.84	1.27	1.24	1.85
78	Bahaskar Nivruti Talele	7.8	0.7	0.44	137.98	26.2	414	13.32	0.58	0.35	2.76	1.84	2.68
79	Pushpabai B. Talele	7.6	0.64	0.32	112.9	20.38	336	12.6	0.58	0.47	3.57	1.12	2.04
80	Vasant Baliram Talele	7.6	0.67	0.23	100.35	14.56	358	11.52	0.6	0.43	3.53	1.48	2.5
81	Rajubai Ramesh Patil	7.7	0.66	0.27	112.9	8.73	426	12.6	0.44	0.42	3.27	1.22	2.78
82	Nandu Sitaram Patil	7.6	0.67	0.23	175.62	11.64	392	13.68	0.58	0.47	2.5	1.7	1.94
83	Gajmal Mukund Patil	7.8	0.66	0.38	150.53	23.29	347	14.76	0.48	0.52	3.97	1.94	1.76
84	Zendu Keshav Bhangale	7.9	0.75	0.21	213.25	29.38	314	11.52	0.48	0.49	2.51	1.94	1.76
85	Prhalhad Keshav Bhangale	7.6	0.9	0.39	125.44	14.56	437	10.6	0.42	0.62	2.6	1.22	1.11
86	Pramod Hema Chopade	7.7	0.67	0.44	112.9	11.54	246	10.08	0.48	0.52	1.97	1.64	1.57
87	Bhaskar Nathu Chopde	7.8	0.64	0.29	137.98	20.38	314	11.62	0.61	0.62	3.71	1.48	1.65
88	Vimal Hema Chopade	7.7	0.57	0.29	100.35	14.56	213	11.16	0.67	0.63	3.04	1.7	1.11
89	Sushilabai N. Mendhole	7.5	0.6	0.42	125.44	8.73	336	7.2	0.4	0.39	2.83	1.44	1.02
90	Harish Hema Chopade	7.4	0.81	0.24	100.35	14.56	370	9	0.48	0.46	3.57	1.96	1.3
91	Vikas Baliram Patil	7.7	0.46	0.44	150.53	8.37	426	16.28	0.54	0.34	3.3	1.34	1.39
92	Dnyneshwar R.Patil	7.9	0.64	0.33	163.07	14.56	370	15.48	0.56	0.32	2.73	1.94	1.57
93	Rajendra Gopal Jawale	7.9	0.64	0.33	172.9	23.29	246	14.4	0.47	0.46	3.72	1.66	1.65
94	Suvarna Vasant Khadse	7.6	0.56	0.29	100.35	11.64	202	10.44	0.50	0.83	1.49	1.48	2.04
95	Sulbha Digambar Kolhe	7.5	0.68	0.23	124.44	29.2	336	13.68	0.67	0.47	2.42	1.32	2.5
96	Taibai Yadav Choudhari	7.8	0.64	0.38	188.16	14.56	246	11.16	0.52	0.47	3.09	1.44	1.3
97	Padmabai R.Talele	7.8	0.65	0.29	163.07	23.29	392	14.4	0.62	0.41	2.47	1.68	1.57
98	Prabhakar Y.Jawale	7.7	0.51	0.27	137.98	14.56	336	10.08	0.4	0.39	1.2	1.48	1.11
99	Vaman Yashwant Jawale	7.7	0.69	0.41	160.53	8.73	358	9.9	0.49	0.44	1.49	1.32	1.76
100	Sitaram Kashiram Patil	7.6	0.56	0.26	163.07	14.56	280	13.68	0.62	0.47	0.65	1.48	2.04
101	Prakash Budha Patil	7.8	0.66	0.44	100.35	20.38	362	11.16	0.49	0.64	3.04	1.16	2.68
102	Arun Budha Patil	7.7	0.75	0.29	112.9	23.29	346	14.76	0.44	0.49	3.09	1.32	2.78
103	Tulshiram Budha Patil	7.8	0.55	0.38	128.44	14.56	347	16.44	0.4	0.47	1.81	1.88	1.39
104	Bapu Bhudha Patil	7.6	0.6	0.2	137.98	20.38	314	16.2	0.49	0.48	1.71	1.88	1.29
105	Bhaulal Bhudha Patil	7.7	0.65	0.26	160.63	8.73	336	18	0.74	0.47	3.07	1.84	1.82
106	Yogesh Dnyneshwar Patil	7.9	0.63	0.39	142.9	14.56	213	13.68	0.49	0.43	1.93	1.34	1.94

107	Tarachand Pura Vanjari	7.8	0.71	0.24	100.35	8.73	314	10.8	0.46	0.42	2.66	1.2	1.3
108	Hansraj Hiraman Vanjari	7.8	0.7	0.3	125.44	23.29	336	11.16	0.56	0.49	3.68	1.48	1.57
109	Raju Tara Vanjari	7.8	0.64	0.29	188.16	14.56	382	15.48	0.47	0.36	2.73	1.18	1.76
110	Nausabai Tara Vanjari	7.7	0.54	0.42	100.35	14.56	414	13.68	0.49	0.41	3.98	1.98	1.88
111	Rajendra Shravan Nike	7.7	0.75	0.36	100.35	20.38	381	16.29	0.54	0.34	3.69	1.56	2.22
112	Shobha Bap Dhanu Bhil	7.8	0.32	0.29	137.98	8.73	347	14.46	0.52	0.32	3.27	1.18	2.5
113	Dnyneshwar Narayan Patil	7.7	0.6	0.26	188.44	14.56	448	9	0.44	0.44	3.39	1.32	1.94
114	Madhav Sitaram Patil	7.5	0.71	0.41	113.6	17.47	246	8.26	0.49	0.49	3.95	1.16	2.68
115	Namdev Puna Koli	7.6	0.54	0.3	100.35	23.29	224	10.6	0.47	0.39	3.65	1.44	1.2
116	Kamalbai Trambak Patil	7.8	0.61	0.21	125.44	23.29	280	9	0.56	0.43	2.53	1.18	1.3
117	Lakshan Trambak Patil	7.6	0.5	0.42	112.9	14.56	358	14.76	0.43	0.4	2.53	1.74	1.02
118	Anjanabai Shamrao Patil	7.7	0.4	0.27	112.6	11.64	235	16	0.72	0.6	3.27	1.36	1.11
119	Govinda Dhangar Patil	7.6	0.36	0.38	127.68	11.64	437	9.36	0.5	0.36	3.27	1.63	1.3
120	Dhondu Dhangar Patil	7.8	0.75	0.27	100.35	14.56	426	10.44	0.4	0.68	2.65	1.86	1.3

Table 2: Physico-chemical, Available sulphur and micronutrient status (mg kg $^{-1}$) in soils of Dui Village Muktainagar Tehsil, Jalgaon district Maharashtra.

(**Soil Health Card Scheme** under National Sustainable Farming Scheme in Soil and Water Testing Laboratory at Godavari Foundation's, Dr UlhasPatil College of Agriculture, Jalgaon).

Results and Discussion

pH

One hundred and Twenty farmers were selected from the Dui Village, Muktainagar, Jalgaon Dist. for analyze the pH of surface soil. The results are indicated that soils are in Neutral in nature (Table 1).

EC (dS m^{-1})

Same as pH Electrical conductivity of soil also analyzed and results are showed that EC of soils is within safe limit (Table 1).

Organic Carbon (%)

As pH and EC, Organic carbon also analyzed for the fertility status of soils of Dui Village, Muktainagar, Jalgaon Dist. The results are indicated that the organic carbon content of soil is low to medium inrange (Table 1).

Available Nitrogen (kg/ha)

The soils of Dui Village, Muktainagar, Jalgaon Dist. having available nitrogen range is low (<280 kg/ha) (Table 1).

Available Phosphorus (kg/ha)

The soils of Dui Village, Muktainagar, Jalgaon Dist.having available phosphorus range is from low (<10kg/ha) to medium (10-25 kg/ha) (Table 1).

Available Potassium (kg/ha)

The potassium content of Dui Village, Muktainagar, Jalgaon Dist.is generally medium (110 to 280 kg/ha) to high (>280 kg/ha) in nature (Table 1).

Available Sulphur (mg kg-1 or ppm)

The soils Dui Village, Muktainagar, Jalgaon Dist. having the available sulphur IN medium range **10-20 (mg kg-1)** (Table 1).

Available Micronutrients

Available Zn: DTPA-Zn of Dui Village Muktainagar Tehsil, Jalgaon district Maharashtra ranged from 0.40 to 0.79 mg kg^{-1}and varied from low to medium.

Available Cu: The DTPA extractable Cu in the soils ranged from 0.31- 0.83 mg kg^{-1}. All the soils in this village were found sufficient in Cu content.

Available Fe: DTPA-Fe content showed a wide variety of low to medium 0.65 - 5.97 mg kg^{-1} in the soils of the study area. 1.20.

Available Mn: The DTPA-Mn status of soils ranged from 1.12-1.96 mg kg^{-1}.

Available Bo: Available boron in soils of Dui Village Muktainagar Tehsil ranged from 1.02-2.78 mg kg^{-1}.

Conclusion

In the light of results summarized above, it observed that the soils of Dui village, Muktainagar Tehsil, Jalgaon district, Maharashtra having soil reaction is neutarl in nature, electrical conductivity is having safe limit, organic carbon is moderate to very high, available nitrogen is low, phosphorus is low to medium and potassium is medium to high in nature. Also the micronutrients status of Dui village is found low to medium in range.

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