



## STUDIES ON CHARACTERISTICS OF SOILS FROM NEWASA AREA, AHMEDNAGAR DISTRICT( M. S.)

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### ABSTRACT:

In our country agriculture is the backbone of Indian economy. Today, in India 65% people are depending upon agriculture. Agriculture is the largest and the most important sector of the Indian economy. In present study reveals that, due to the over irrigation and higher dosage of chemical fertilizers to the crops, continuous cropping pattern, lack of bio fertilizer effect on physical, chemical and biological characteristic of soil. Soil become compact, hard, poor water holding capacity, alkaline, infertile and ultimately yield reduced. Hence it is need have time that agricultural is best of any development that flourishes with best soil. There is a wide scope for increasing the level of agricultural production with the help of to improvement in soil character.

**Keywords:** soil,alkaline,characteristic

### INTRODUCTION:

The soil acts as a medium for plant growth by providing anchorage to roots, thereby enabling plants to stand erect. It acts as reservoir of water and nutrient essential for plant growth. Soil serves as a sink and are also used as recipients of domestic waste through septic sewage systems from municipal, industrial and animal sources soil acts as an essential abode flora and fauna which help in nutrients transformation for up take by the plant roots. Hence study of physical, chemical and biological characteristic of soil, apply proper irrigation system, use proper amount of chemical fertilizer, bio fertilizer, and culture new resistant crops, multiple crop system, alternative crop pattern etc. is necessary.

### MATERIALS AND METHODS :

1. Selected 65 surface soil samples were collected in cloth bags as per the standard procedure.
2. The soil sample collected from irrigated and non-irrigated crop from village of Panegaon, Pachegaon, Chanda, Newasa, Bhenda, Shirasgaon, Punatgaon, Khupti, Devgad, Kukana, Ramdove, Khamgaon, Kharwandi, Tamaswadi, Telkuadgaon, Galnimb, Belpimplgaon, Wadala, Wakadi, Rajegaon, Zapwadi, Ghogargaon, Jainpur, Kangoni, Gondegaon, More Chinchora, Salabatpur, Manglapur, Suregaon (Ganga) of Newasa Tahsil.
3. The processed soil samples were analyzed for their characteristics pH, soil color and bulk density of above soil samples as per the standard procedures

$$\text{Bulk density} = \frac{\text{Weight of soil (gm)}}{\text{Volume of soil}} \text{ (gm/cm}^3\text{)}$$

4. To suggest apply proper irrigation system, use proper amount of chemical fertilizer, bio fertilizer, and culture new resistant crops, multiple crop system, alternative crop pattern to the farmer.

### RESULT AND DISCUSSION :

Due to the over irrigation and higher dosage of chemical fertilizers to the crops, continuous cropping pattern, lack of bio fertilizer effect on physical, chemical and biological characteristic of soil. Soil become compact, hard, poor water holding capacity, alkaline, infertile and ultimately yield reduced. Hence it is need have time that agricultural is best of any development that flourishes with best soil. Soil is the upper part of crust in which plants are anchored.

In the present study, pH ranges from **8.0 to 9.4** reflecting alkaline nature of soils. The most region of Newasa soil becomes more alkaline. If the pH of soil more than 8.5, then effect takes place on physical, chemical and biological characteristics of soil. The more alkalinity of soil takes place effect on root crops. So growth of crop plants cannot takes luxuriantly. Hence yield decrease. pH maintaining the soil fertility and to quantify the amendments used for amelioration (J.A. Daji, 1996). A pH range of 6.5 to 7.5 considered as the pH range in which most of the soil nutrients are available to plants. The supply of plant nutrients and thus the fertility of the soil are affected by pH. The solubility of most nutrients varies in response to pH. As acidity increases, the losses of these nutrients by leaching increases and their availability to plants decreases. The quantity of some nutrients may rise so greatly under acidic and alkaline conditions that they become toxic to plants (D. Briggs, 1977). The best growth and

action of micro flora takes place from 6.8 to 7.2 pH to less of soil. For improving the alkaline soil, the farmer should cultivate crotonia ([sunhemp]), before, flowering stage of these crops, use multiple crop system.

In the present study the data reveals that, the colour of soil is faint black, Black, White faint white ash color. The type of soil is coarse sandy loam, sandy loam, silt loam, clay loam, Black cotton soil etc. Soil color is the most obvious and easily determined soil property. The water holding capacity was varied depending on the soil textures and the clay soil had the highest water holding capacity followed by silt and then sand. (Joanna S. Koo;2006). The bulk density of soil range observed from **0.7 to 1.4** gm/cm<sup>3</sup>. Generally average bulk density of soil is 1.5 gm per cubic centimeters of the ratio of biota higher.

Now a day, study and application of physical, chemical and biological characteristic of soil, apply proper irrigation system, use proper amount of chemical fertilizer, bio fertilizer and culture new resistant crops, multiple crop system, alternative crop pattern is necessary. So soil characteristic such as pH, water holding capacity, porosity etc. must improve, so it will help to increase agricultural crop yield quantitatively and qualitatively in future.

Table 1 Characteristics of soils from Newasa area

Sr.No.	Name of Farmers	village	P.H.	Soil Colour	Bulk density
1.	Shri. Popatrao Kadu	Newasa	8.7	Black	0.8
2.	Shri. Mahesh Mapari	Newasa	8.5	Alluvial	1.4
3.	Shri. Shantaram Tuwar	Pachegaon	8.7	Alluvial	<b>1.4</b>
4.	Shri. Abasaheb Padol	Pachegaon	8.9	Alluvial	1.4
5.	Shri. Ashok Chaudhari	Chandha	9.1	Black	1.0
6.	Shri. Damodhar Adsure	Chandha	8.5	Faint Black	0.9
7.	Shri. Kashinath Warkhade	Devgad	8.4	Alluvial	1.4
8.	Shri. Laxman Warkhade	Devgad	8.4	Alluvial	1.4
9.	Shri. Eknath Kaware	Kukana	8.9	Faint Black	1.1
10.	Shri. Vasantrao Deshmukh	Kukana	8.8	Faint Black	1.2
11.	Shri. Pankaj Deshmukh	Kukana	8.4	Faint Black	0.9
12.	Shri. Babasaheb Agale	Khamgaon	8.5	Regur soil	0.9
13.	Shri. Sambhajirao Agale	Khamgaon	8.7	Regur soil	<b>0.7</b>
14.	Shri. Shivaji Agale	Khamgaon	8.6	Regur soil	0.8
15.	Shri. Bharat Phatke	Kharwandi	8.3	Faint Black	0.9
16.	Shri. Satish Bhoge	Kharwandi	8.5	Black	1.3
17.	Shri. Shankar Kale	Telkudgaon	8.3	Black	1.3
18.	Shri. Mano j Ghadge	Telkudgaon	8.4	Faint Black	1.0
19.	Shri. Navnath Shelke	Galnimb	8.8	Alluvial	1.0

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## Bibliography

- Bendre, A. (2006). - Practical Botany, Meerut, pp. 65-67.
- Briggs, D. (1977). Soils, Butterworths and Co-Publishers, London 129.
- Chandra, R. and Singh, S.K. (2009). Fundamentals and management of soil quality, Westville Publishing House, New Delhi,
- Daji, J.A. (1996). A text book of soil Science, Media promoters and publishers, Bombay.
- Deshmukh, K. K. (2012) Studies on chemical characteristics and classification of soils from sangamner area, Ahmednagar district, Maharashtra, India. Vol. 5 | No.1 | 74-85 ISSN: 0974-1496 | CODEN: RJCABP <http://www.rasayanjournal.com>
- Koo, Joanna S. (2006). Which type of soil can hold the most water? soil textures/ water holding capacity. California state science fair 2006 project summary.
- Majumdar, D. K. (2000) Irrigation Water Management by, Prentice Hall of India

20.	Shri. Surendra Jangle	Panegaon	8.9	Alluvial	1.4
21.	Sou. Suman Gudhde	Panegaon	8.3	Alluvial	1.3
22.	Shri. Sanket Jangle	Panegaon	8.7	Alluvial	1.0
23.	Shri. Chandrakant Jangle	Panegaon	8.9	Alluvial	1.0
24.	Sou. Sadhana Jangle	Panegaon	9.1	Alluvial	0.9
25.	Shri. Sanjay Jangle	Panegaon	8.9	Alluvial	1.1
26.	Shri. Maruti Kharjule	Galnimb	8.4	Black	1.2
27.	Shri. Balasaheb Khedkar	Tamaswadi	8.6	Black	1.0
28.	Shri. Pandurang Shinde	Belpimpalgaon	8.9	Black	1.4
29.	Shri. Baburao Shinde	Belpimpalgaon	8.8	Black	1.0
30.	Shri. Bhasaheb Mote	Wadala	8.9	Black	0.9
31.	Shri. Limbaji Khade	Kagoni	8.8	Faint Black	0.9
32.	Shri. Ashok Chaudhari	Kagoni	8.7	Black	1.0
33.	Sou. Shailabai Langhe	Shirasgaon	8.9	Black	<b>1.4</b>
34.	Shri. SambhajiAgale	Shirasgaon	8.8	Black	0.7
35.	Shri. Bharat Deshmukh	Shirasgaon	8.8	Black	0.8
36.	Shri. RangitDeshmukh	Shirasgaon	8.9	Black	1.1
37.	Shri. Rajendra Mote	Wadala	8.1	Faint Black	0.8
38.	Shri. Vishnu Fukte	Shirasgaon	<b>8.0</b>	Faint Black	0.9
39.	Shri. Rausaheb kale	Wakadi	<b>8.0</b>	Black	<b>0.7</b>
40.	Shri. Rajendra pholane	Ramdove	9.3	Black	1.4
41.	Shri. Narayan Gadekar	Ramdove	9.1	Faint Black	1.3
42.	Shri. Gorakshnath Gavane	Bhenda	9.0	Black	1.1
43.	Shri. Nivurati Misal	Bhenda	8.9	Black	<b>1.4</b>
44.	Shri. Machindra Wakchaure	Punatgaon	8.8	Black	1.0
45.	Shri. SandipS hirsath	Rajegaon	8.1	Faint Black	0.7
46.	Shri. Prabhkar Shirsath	Rajegaon	8.2	Black	1.1
47.	Shri. Deepak Varude	Khupti	9.1	Faint Black	0.9
48.	Shri. Ganesh Bahirat	Ghogargaon	8.1	Black	1.3
49.	Shri. Kiran Bahirat	Ghogargaon	8.2	Black	0.9
50.	Shri. Ramrao Bahirat	Gghogargaon	9.0	Alluvial	1.1
51.	Shri. Bapusaheb Kagune	Jainpur	9.1	Alluvial	1.1
52.	Shri. Annasaheb Kagune	Jainpur	9.2	Alluvial	1.0
53.	Shri. Babasaheb Shirsath	Gondegaon	8.4	Black	1.3
54.	Shri. RakhmajiShirsath	Gondegaon	8.6	Faint Black	1.0
55.	Shri. Baburao More	Morechinchora	8.5	Black	1.1
56.	Shri. Kisanrao More	Morechinchora	8.5	Faint Black	1.0
57.	Shri. BahuraoBarahate	Zapwadi	8.6	Faint Black	0.9
58.	Shri. Dattaraya Kale	Zapwadi	8.5	Faint White	0.8
59.	Sou. Yamunabai Shinde	Salabatpur	8.4	Faint Black	1.0
60.	Shri. Ashok Dane	Salabatpur	8.6	Faint Black	1.2
61.	Shri. Kiranrao Jape	Manglapur	9.0	Alluvial	1.1
62.	Shri. Babasaheb Shinde	Maglapur	9.1	Black	0.8
63.	Shri. Sampatrao Gange	Suregaon(Ganga)	9.1	Alluvial	0.9
64.	Shri. Ramrao Gange	Suregaon(Ganga)	<b>9.4</b>	Alluvial	0.9
65.	Shri. Popatrao Gange	Suregaon(Ganga)	9.1	Black	1.0