

Preparation Of Soil Fertility Map Of Niphad Taluka Farm, Nashik, Maharashtra, India

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Abstract: For efficient utilization of soil and water resources, soil testing of such farm was carried out in Niphad farmer for providing comprehensive information was characterized representative soil sample's from each of sixteen plot's of Niphad taluka farmer were collected the soil survey of representative area was completed by plane table survey method. The soil sample's where tested in laboratory for determining various soil properties viz soil PH, soil E.C., soil colour, soil Texture, liquid limit, plastic limit, bulk density and soil nutrients like organic carbon content, Gypsum content, soil Calcium Carbonate, available nitrogen, available Potassium and available Phosphorus. From result obtained after analysis data where field in to the software and prepared soil fertility software. A standard soil fertility map is a to dimensional document presented on a paper or on various other kind of support and gives greatly reduced simplified picture's of the spatial organization of soil's in the natural environment showing the soil properties and available soil nutrients the work is carried out for preparation's of soil fertility map of Niphad taluka farmer. The Niphad taluka farm is situated in the Shivadi at Niphad, Nashik, The area of farm was about 16 acr. The area selected for project work is 10 acr. There are 16 plot's in the farm.

Keywords: soil fertility map, soil properties, soil survey and sampling.

I. INTRODUCTION

Agriculture being the backbone of Indian economy, it is necessary that agricultural activities should be more productive and precise. More production can be achieved, if soil and water are efficiently used. For efficient utilization of this resources, it is important to prepare a soil fertility map showing different to properties of soil. Soil survey is a study and mapping of soil in their natural environment. It is the systematic examination, description, classification and mapping of and area. It is one of the best tool's for the management of soil resources, mapping of soil i.e. establishing and drawing soil boundaries of different of kind's of soil on standard topographical base map. Soil sampling is most important step in a good soil testing programme. The chemical analysis of soil will measure the nutrient status of the soil and serve as a guide to profitable use of fertilizer's. Soil sample's are collected from the field to study the soil type's and to evaluate the fertility status of soil. Hence it is

necessary to collected the composite soil sample from the field. A standard soil fertility map is a to dimensional document presented on a paper or on various other kind of support's and gives greatly reduced simplified picture's of the spatial organization of soil in the natural environment showing the soil properties and available soil nutrients. The work was carried out for preparation of soil fertility map of Shivadi farm Nashik. The Shivadi farm is situated which belong's to Khapare Kailas Namdev at Shivadi, Tal- Niphad, Dist- Nashik.

The area of farm was about 10 acr. The area selected for project work is 5 acr. There are 16 plot's. This work was carried out in the year of 2014-2015 in above mention farm. The basic objective of soil fertility map is to give farmer's a survies leading to better and more economies use of fertilizer's and better soil's management practices for increasing agricultural production.

II. THE OBJECTIVE'S OF STUDY ARE

- ✓ Surveying of the study area and preparing the soil sampling station's.
- ✓ Laboratories analysis for determination of the soil properties.
- ✓ Preparation of soil fertility map and data enterpretation.
- ✓ Recommendation of crop's.

III. RESOURCES AND RESEARCH METHOD'S

Intially the surveying of the farm carried out by using the plane table method followed by the making of soil sampling station on the map as well as in the plot's. The soil sample' were them collected from the sampling station. The quality of the original soil sample play's a key role in determining the practical value of test result's. The soil sample were then tested from different soil properties and soil nutrients. The soil properties determined in the laboratory were soil PH., Electrical conductivity, soil texture, liquid limit, plastic limit, bulk density, partical density, porosity and various ratio. These properties were determined by using different instrument's like PH meter, Electrical conductivity meter, soil texture by using mechanical sieve shaker and liquid limit by casse grande apparatus. The soil nutrient's viz. organic carbon content, calcium carbonate content Gypsum requirements were determined by using titrimetric method, available nitrogen content by Kjedhal's method, available phosphruos content by spectrophotometer, available potassium content by using flamephotometer. Then the obtained results of the soil parameters were compared with the standard and normal rating of each soil parameter. According to availability of the nutrients, fertility map was prepared for the soil parameters e.g. map of soil PH, map of available nitrogen etc. finally the recommendation of crop's was made according to the available data of farm.

IV. RESEARCH FINDING'S AND DISCUSSION

Different type's of soil properties and soil nutrients analyzed were studied from 16 plot's of shivadi farm. The soil PH for all plot's with in range i.e. 5.2 to 6.5. So soil was slightly acidic in nature (table – 1 and fig. 1, 2). The electrical conductivity of soil was from to be normal range (Fig.-3). The available moisture content was with in range the soil texture was coarse textured soil group. The particle density and bulk density were in normal range from 2.65 to 2.75 g/cm³ (Das- 2003)

The organic content of soil was found to be high in plot no. 2,4,6 ,10and 14 because were near road and tall plant like mango, Gava, planted so leaf fall and animal waste were added in to this soil. Hence, organic matter increased. Remaining plots were normal in range (fig. – 4) The calcium carbonate content of soil was found tobe normal in range except plot no 1,2,3,4 and 6. The available nitrogen content was lower in range from from 125.44 to 285.38 kg/ha. For all plot's.(fig– 5). The available phosphrous was lower in range i.e.from 5.64 kg/ha.

COMPARATIVE RESULT FOR SHIVADI FARMA

Plot no.	Area of the plot	PH	EC (mm hos/ cm)	Avail able Moist ure Conte nt (%)	Orga nic Carb on conte nt (%)	Calciu m Carbo nate Conte nt (%)	Gypsu m Require ment (Meq/g)	Nitroge n Availab le (Kg/ha)	Potass ium Availa ble (Kg/h a)	Phosp horous Availa ble (Kg/h a)
1	0.18	6.5	0.19	4.20	0.59	22.25	0.33	194.43	268.63	6.16
2	0.10	6.5	0.18	6.20	0.83	15.75	0.36	247.74	257.71	5.65
3	0.10	6.3	0.24	3.60	0.78	16	0.34	222.66	312.31	8.21
4	0.11	6.3	0.25	3.60	1.08	19.25	0.33	128.58	268.63	7.18
5	0.39	6.4	0.21	3.30	0.78	7	0.30	194.43	312.31	6.67
6	0.10	6.4	0.19	2.48	1.02	14	0.30	219.52	279.35	6.16
7	0.29	5.4	0.23	5.15	0.72	5	0.29	169.34	268.68	7.18
8	0.29	5.3	0.22	4.47	0.78	1.5	0.39	197.57	270.82	6.16
9	0.29	5.3	0.23	4.43	0.59	1.25	0.32	191.30	257.71	9.23
10	0.25	5.2	0.24	5.34	0.86	2	0.31	250.88	259.90	7.18
11	0.19	6.2	0.17	3.59	0.71	3.75	0.37	254.03	268.63	8.21
12	0.15	5.3	0.19	2.74	0.68	1.75	0.32	282.24	314.52	6.16
13	0.14	5.2	0.18	3.26	0.50	2.75	0.27	191.30	355.99	8.72
14	0.14	5.2	0.20	4.40	0.75	3	0.33	254.02	288.29	8.21
15	0.14	6.1	0.25	3.60	0.60	3.50	0.37	125.44	264.26	7.18
16	0.10	6.0	0.18	2.90	0.45	5	0.28	185.05	264.26	6.61

Table 1

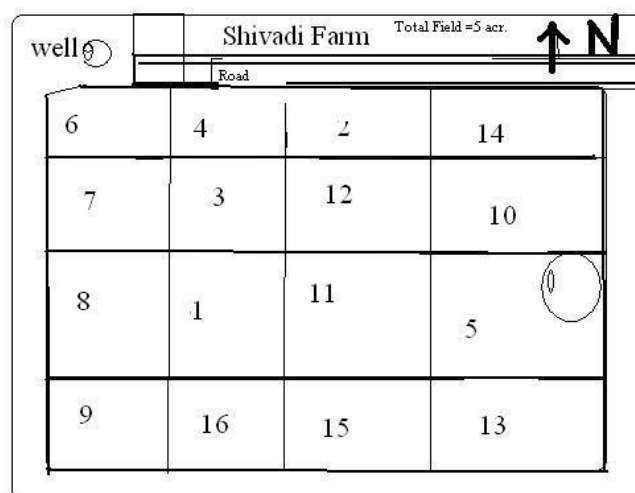


Figure 1

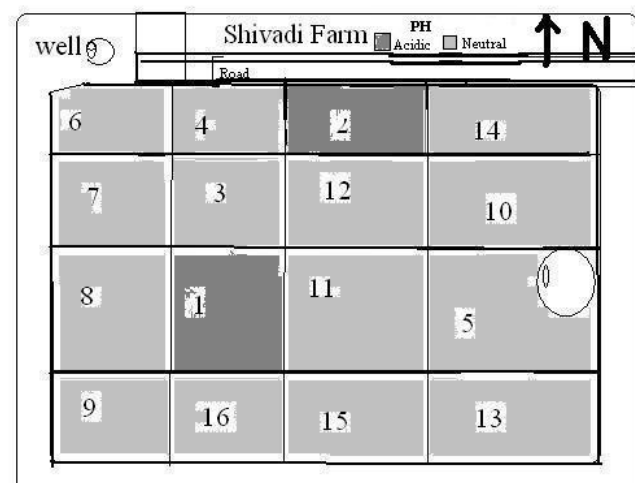


Figure 2

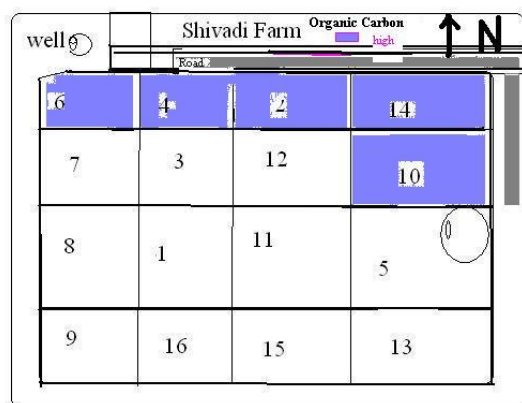


Figure 3

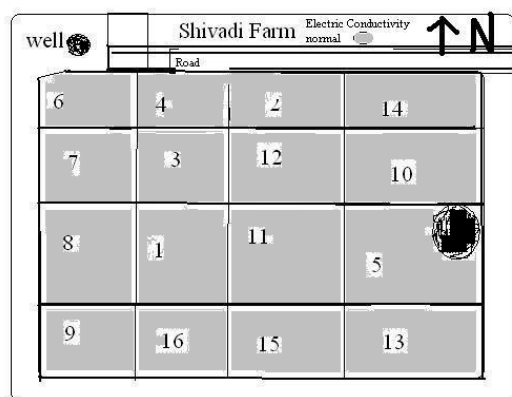


Figure 4

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